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“Why can’t you just tell us?”

Learning Canadian History with the Virtual Historian

Stéphane Lévesque

Introduction

What do students learn from educational technology? What expertise do digital history applications develop in computer users? Surely, for most educators web entertainment and serious game skills are inadequate answers to these questions—and for sound reasons. For today’s secondary school and university students, technology plays an integral part in their learning experiences.¹ Students are “digital natives” and savvy.² No longer does it suffice for a history teacher to present an overhead and have students take notes. No longer is it viable for a museum to count on traditional exhibits to attract new visitors. For Marc Prensky,

Today’s students have not just changed incrementally from those of the past, nor simply changed their slang, clothes, body adornments, or styles, as has happened between generations previously. A really big discontinuity has taken place. One might even call it a “singularity”—an event which changes things so fundamentally that there is absolutely no going back. This so-called “singularity” is the arrival and rapid dissemination of digital technology in the last decades of the 20th century.³

Twenty-first-century students are used to interacting with hypermedia, to downloading music on their cell phones, to consulting a library database on
their laptops, and to beaming instant messages while watching television or playing video games. They are actively involved in social networks and have little patience for classroom lectures, content-driven textbooks, and standard literacy tests. In this period of apparent “discontinuity” with past generations, it may seem futile to have young learners read passages from authorized textbooks or to introduce them to primary sources written in a seemingly “foreign” language from historical actors so distant from their busy, technological lives. From this perspective, the question should no longer be about whether to use digital technology but rather how to use it to further the acquisition and development of expertise in domains of knowledge.

This chapter addresses some of the fundamental questions of digital technology in education from a disciplinary perspective. Using history as a domain of knowledge, it first reviews the research base related to inquiry-based learning and digital technology in history education. Then, the chapter explores the implications of using technology in the history classroom, focusing on the findings from a study with a digital history program. For the purpose of this study, “digital technology” refers to computer or network-based applications—including online learning programs supporting the teaching and learning of subject matters—whereas “virtual history” means the study and use of the past with digital technology.

Doing History . . . with Technology

History educators have long argued for more authentic forms of history teaching and learning. From the nineteenth-century inquiry ideas of Leopold von Ranke through to Fred Morrow Fling’s source methods, progressive historians have believed in a theory of school history anchored in teaching the discipline with inquiry. Meaningful and enduring understanding, from this perspective, is an active and continuous process of knowledge acquisition and (re)construction in light of students’ prior knowledge, understanding, and engagement with the discipline. In history education, several studies have documented the futility of storytelling and textbook-centered instruction on students’ historical learning. Instead, they have pointed to the necessity of engaging students actively in the heuristics of reading, sourcing, researching, and doing historical investigations.

Yet, as Samuel Wineburg puts it so eloquently, historical thinking is not a “natural” act. It is a sophisticated form of knowledge. Novices intuitively view history as a story of the past whereas historians develop expertise in thinking critically about the past. For the former, learning history is equated to “getting the story right,” usually in the form of a simplified narrative.
For the latter, however, knowing history implies a complex—and always tentative—dialogue with the past using the available evidence and tools of the discipline. Growing evidence suggests that the development of a community of inquiry can help develop expertise among novices.\(^8\) Linda Levstik and Keith Barton indicate that the process of asking meaningful questions, finding evidence, and drawing conclusions is known as inquiry. Teachers, they argue, “can capitalize on children’s natural enthusiasm for learning by making their classrooms places where students explore important and meaningful questions.”\(^9\)

Equally challenging for twenty-first-century classrooms is the use of educational technologies. I have argued elsewhere that rich technological open learning environments, such as digital history programs, can support inquiry-based learning because of the types of resources and opportunities they offer to learners.\(^10\) With the development of the Internet and related applications, there has been a push in the last decade to infuse technology into the history curriculum. As John Saye and Thomas Brush argue, digital open learning environments (1) create more realistic, vivid engagements with history (lifelike inquiries) than what is currently available, and (2) draw on and stimulate student development of expertise in history and new technologies.\(^11\)

While school subjects such as science, language arts, and geography have directly benefited from instructional technologies, history lags behind.\(^12\) Particularly in Canadian education, few digital programs focus on history education beyond archival websites, virtual tours, and online texts. The recent development of the *Great Unsolved Mysteries in Canadian History* project\(^13\) presents refreshing initiatives to Canadian educators (see the chapter by Ruth Sandwell and John Sutton Lutz in this volume). In their own unique way, such programs put users in the virtual shoes of detectives engaged in investigating past and contemporary issues of significance.

### Students’ Learning and the Virtual Historian

Instructional experience and the effectiveness of digital technology directly affect student learning. Empirical studies have revealed the limited pedagogical impact of storytelling and textbook reading on students’ historical development and reasoning.\(^14\) “There is thus a need for a shift in students’ existing habits of classroom work. The integration of digital technology in the history classroom can provide a catalyst for such a change.”\(^15\)

Yet educators must not hold unrealistic expectations. Recent findings suggest that technology alone is not a viable solution. Adam Friedman
argues in his study of high school history teachers and technology that the use of online sources “depended to a greater extent on their access to computer projectors and school computing facilities.” In the same way, the experimental studies of Saye and Brush, the qualitative works of John Lee and Brendan Calandra and Andrew Milson on WebQuest, and finally the Google search study of Bing Pan et al. offer important recommendations to consider. Affordable access to online resources, such as primary source documents, artifacts, and hypertexts, provides users with a rich base of historical information rarely available in traditional textbooks. From such sources, students can navigate more randomly and be exposed to a greater variety of source types and perspectives on a given subject, widening their horizons and responding to their inquisitive minds. Yet many students in these studies have expressed concerns with regard to the nature of the sources and the amount of information available. Online historical texts are rarely produced in a language and narrative genre familiar to students. In the same way, the large—seemingly infinite—amount of texts available at the click of a mouse can easily overwhelm students who lack the searching and skimming skills necessary to navigate multiple, and often contradictory, sources. The result, as Milson observes, is that many students adopt a “path of least resistance,” scanning the material for quick and easy cut-and-paste factual answers.

Available to users in both French and English, the Virtual Historian (VH) (www.virtualhistorian.ca) is an instructional technology developed to meet some of the challenges of digital history learning (see figure 2.1). Unlike textbooks, learning guides, and WebQuests, the VH provides users with nonlinear, authentic, and realistic inquiries (“missions”) about key issues in Canadian history. Web-based inquiries are framed around “topical questions,” which call for critical analysis, dialectical reasoning, and sophisticated understanding of key phenomena in the history curriculum.

To complete their inquiries, students have access to an online tutorial and a brief synopsis of the mission with a topical question to answer. Curriculum rubrics present all the learning objectives addressed in the mission. Students are provided with conflicting primary and secondary sources on the subject, with embedded reading and sourcing questions, and with a web-based notepad to record and write answers. Students also have access to an online glossary for key words, to additional web resources, as well as to an integrated email program to communicate with their teacher or the program administrator.

Even though the VH was designed to promote digital inquiry learning, does it really work? Does it have a positive impact on students’ understanding of history? To answer these questions, a quasi-experimental study was conducted with 107 Ontario high school students in 2007–8. Following the
Canadian history curriculum for grade 10 (Ontario Ministry of Education, 2005), one task was developed in the VH program: a case on “World War II and the Dieppe Raid, 1942” with four grade 10 history classes (two classroom-based and two VH) from two different English-speaking urban schools. By using the VH in Canadian classrooms, the study aimed to uncover the still unclear role and influence of such educational technology on students’ historical thinking and literacy—in terms of substantive knowledge acquisition (e.g., events, actors, dates), procedural knowledge development (e.g., use of evidence, perspective, significance), and epistemological knowledge understanding (how historical knowledge is constructed). Because of the potential of modern technology, the assumption was that digital history, as built in the VH program, can “mediate and support student historical thinking.”20

Methodological Matters

As noted above, the subject focus for this study was on Canada’s participation in World War II: the Dieppe Raid of 1942. The participation of Canadians at Dieppe in 1942 is an important episode in the study of World War II. It marked the first official engagement of Canadian troops on the European
front. Of the six thousand soldiers involved in the Allied raid of August 1942, five thousand were from French and English Canadian units. The Dieppe Raid was not a military success: 907 Canadians died in the battle and nearly 2,000 were captured by the German army. The outcome and impact of the raid are still debated today by historians: useless massacre to test German defense, or necessary lesson for D-Day?

The tasks included for this study first comprised a pre-instruction test that identified students’ prior knowledge and understanding of World War II and the Dieppe Raid. This test was administered before students received formal teaching on the subject by the selected teachers (see following item for participating teachers). The second task focused on the experimental use of the Virtual Historian as an online teaching tool. Selected students from the VH groups received a brief introduction to the program by their respective teachers and spent three additional classes on the web-based historical investigations. During these classes, the teacher’s role was to assist students in their learning of the topic from the VH. The “case” from Canada’s participation in World War II developed in the Virtual Historian comprises a series of authentic, primary, and secondary source documents on the issue. The case also provided a historical map and photographs, declassified Allied and German newsreels and memoranda, a Canadian newspaper article of the time, sounds and animations, and extra resources in the form of hyperlinks to relevant official websites.

Students in the classroom groups did not use the VH but learned from one classroom lesson and an inquiry-based activity in the form of a carousel set with resources distributed to them at each station. Teachers in these classes were responsible for designing three inquiry-based lessons on the subject matter and were instructed to use the same sources on Dieppe. These included primary sources (historical photographs of the raid, paintings, and maps) and secondary sources (excerpts from three textbooks, video clips from CBC Canada: A People’s History and Canada at War series, and the Canadian Encyclopedia online) that students analyzed during the activity. The lessons were submitted and reviewed before teachers engaged in the study of Dieppe with their students. Both the VH and classroom groups had to answer the same questions on the Dieppe Raid and were provided with the same report template. More specifically, the history case asked students to study the strategic importance (or “historical significance”) of the Dieppe Raid for Canada, for the Allies, and ultimately for World War II. Students in all groups wrote an essay on the raid of 1942 based on the worksheets and sources at their disposal. Finally, the same questions from the pre-instruction test were used in a post-instruction test to assess students’ progression in historical learning of the subject.
The participants for this study were made up of four classes of grade 10 students from two urban Ontario school districts \((n = 107)\). The selection of participants followed a multiple-case design. Two large urban schools in Ontario provided windows into two comparable grade 10 classes per district. The demographic information for the participating schools indicates that 787 students were enrolled in school #1 (174 students in grade 10), and 887 students in school #2 (170 students in grade 10). Results of the Ontario grade 10 literacy test for the schools indicate that 92 percent of participating first-time eligible students successfully completed the literacy test for school #1 and 64 percent of participating first-time eligible students for school #2 (compared to 84 percent as an average for the province). Each school had one classroom and one VH group with similar achievement means. Two different teachers (one for the VH group and one for the classroom group) were selected for each school. Selection was based on willingness to participate in the study.

**Findings**

Table 2.1 presents data on the VH and comparison groups concerning their understanding of the subject matter, discipline, and epistemology. For both instructional and VH groups, pre-test, post-test, and essay scores show that students increased their comprehension of the subject matter, understanding of history, and literacy skills.

Findings reveal, however, that using the VH led to the organization and writing of more sophisticated essays as evidenced by students’ mean scores

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<th>Variables</th>
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<th>Virtual Historian Groups</th>
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<td>Pre-Test Mean (SD)</td>
<td>Post-Test Mean (SD)</td>
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<td>Tests and essay</td>
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<tr>
<td>School #1</td>
<td>3.51 (1.17)</td>
<td>10.29 (2.65)</td>
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<td>Epistemology</td>
<td>3.53 (1.38)</td>
<td>4.23 (1.59)</td>
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<td>School #2</td>
<td>4.11 (2.67)</td>
<td>9.08 (2.60)</td>
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<td>Tests and essay</td>
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<tr>
<td>School #2</td>
<td>2.99 (1.71)</td>
<td>4.38 (1.58)</td>
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A t-test reveals a statistically reliable difference between the mean scores of the two groups for school #1, \( t(44) = 3.570, \ p = 0.001, \ \alpha = 0.05 \). Students in the VH group were able to construct more structured and coherent arguments than their counterparts. Their knowledge of the subject (e.g., series of events, actors, facts) was greater and their ability to think historically (present clear arguments supported by appropriate evidence, consider historical significance, and make judgments on the issue) was significantly more sophisticated than those in the classroom group. The same pattern could not be found with school #2 (\( m = 12.73 \) vs. \( m = 12.55 \)), \( t(45) = 0.172, \ p = 0.865, \ \alpha = 0.05 \). Yet, when looking at students’ understanding of epistemology, findings indicate that participants in the VH group for school #2 developed more advanced understanding of the nature of historical knowledge than their counterparts in the classroom (\( m = 4.38 \) vs. \( m = 2.99 \)), \( t(50) = 3.049, \ p = 0.004, \ \alpha = 0.05 \).

To investigate the relationship between variables (schools, groups, instructional strategies), an analysis of variance (ANOVA) was conducted using the essay scores as the dependent variable and the strategies (instructional, VH) and groups (school #1, school #2) as factors. The results (table 2.2) confirm the main effect of the strategy and school on essay scores. The results also indicate an effect between the instructional strategy and the school.

The non-statistically reliable differences on essay scores with students in school #2 are intriguing. Although further analysis is needed at this point, it can be hypothesized from the ANOVA test that external factors related to the school influenced the performance of these students. The lower scores of students from this population on the literacy test and the greater number of students with individualized educational programs (IEPs) and also having English as an additional language (26 percent of the grade 10 population for school #2 compared to 10 percent for school #1) are factors that appear to

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<th>TABLE 2.2. ANOVA test</th>
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<td>Dependent variable: Essay scores</td>
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have impacted significantly on their overall performance. A section of this chapter below addresses this point.

**Discussion and Conclusion**

Learning to think critically about the past is a long and arduous process likely to put students and teachers at odds with popular history and standardized tests. There has been a misleading tendency in education to view knowledge as a binary “all-or-nothing” mode of acquisition. Learning outcomes in curriculum guidelines are often designed for teachers to assess whether or not students master the prescribed expectations for history. But like in any sport or apprenticeship program, history learners do not instinctively turn into experts after some limited exposure to the field. They gradually become skilled when engaged in various drills, practices, and exercises suited for their own development.\(^{22}\) Even then, intuitive and common-sense ideas often remain durable after repeated learning activities and experiences. To achieve expertise, people require “ample doses of discipline in the alternative sense of the term: regular practice, with feedback, in applying those habits of mind that yield understanding.”\(^{23}\)

The Virtual History program was designed to provide students with *some* digital exposure to what it is like to gradually inquire and think like a historian. Students in the VH groups, particularly from school #1, developed a deeper understanding of the subject matter and the discipline than those who studied the same subject from classroom learning activities. They were able to describe more specifically the events and actors involved in the Dieppe Raid, provide more supporting evidence for their claims, and explain more thoroughly what history is and how historical interpretations are generated. In other words, they showed a more advanced progression in thinking historically about the events. For Catty, a female student from school #1, different interpretations of Dieppe are valid “so long as there is evidence to support the other interpretation” (TOE-004).\(^{24}\) Virgil goes further and discusses the contingency of historians’ claims by arguing that “some interpretations can be different. Like some sources today may still be available to historians that they have not investigated yet” (TOE-016). The following essay explanation from Pearce on the lessons learned from the raid illustrates very well how students from this group used the historical documents in their essay. Lessons are specific to the context of the battle, look at both sides, and are supported by references or direct quotations to the sources in question.
There were many lessons learned from the mistakes at Dieppe. The need for fire support provided itself to be one of the biggest lessons, as there was no fire support at Dieppe (Report 128). A more confirming lesson learned was one of weapons. The Allies learned that most weapons performed wonderfully with the exception of the incendiary bullet, which was virtually useless (Notes from the Theatres of War). A battleship was thought to have potentially “turned the tide in our favour” according to Capt. J. Huges-Hallet. . . . The Germans learned that any attempt to invade the town could be promptly destroyed on the beach (Hamilton Newspaper Article).

In contrast, more students from the classroom (non-VH) groups understood history intuitively and produced essays in story form without use of the evidence provided to them in class. This finding was more evident with students from school #2. Sources were largely absent or considered exclusively for the information they convey (facts, dates, events). In many ways, their essays mirrored their school textbook—in terms of both content and structure. The following excerpt from Vero is typical:

The raid at Dieppe was useful because troops learned lessons from it. It was used as a learning experience that provided the Allies important information about Germany and battle strategies. Lessons learned were used two years later in 1944 for the D. Day battle. Britain developed armoured vehicles. This allowed their engineers to perform their tasks protected by amour. These vehicles were successfully used on D. Day. (TOC-023)

Unlike the previous student’s explanation, this one offers only vague statements on the lessons. It is not clear from this essay what has been learned or why “Britain developed armoured vehicles” for D-Day. In fact, no source is referenced in text, making it extremely difficult to understand the reasoning of this student and her ability to infer knowledge from sources. Information is presented in a descriptive manner, only without a coherent, evidence-based argument.

Equally interesting from the findings is the positive relationship between students’ historical thinking and their ability to write essays—a correlation that has also been observed in previous studies. An analysis of the relationship between essay structure (thesis, composition, citations/references) and thinking skills (argumentation, use of sources, significance of the raid) reveals a high coefficient of correlation between the two sets of scores for school #1 (Pearson $r = 0.779, p < 0.001$) and school #2 (Pearson $r = 0.795,$
These results suggest that students who have acquired some sophisticated understandings of history as a discipline are more likely to develop well-structured and coherent historical essays. Similar results were also found in a previous study with Canadian students, which established that the VH favors engagement with the subject matter and focuses students’ attention on the resolution of an investigation based on historical evidence and inquiry steps. Students in the VH group did not see a disconnection between the web-based inquiry and the writing of their argumentative essays, as did students in the comparison group. More than this, they had the feeling they could personally investigate and go into greater depth in the study of a significant episode in Canadian history.

But since the direction of the correlation is not clear from this study, it can also be hypothesized that historical literacy skills have a direct impact on how students make sense of the past. Research shows that those who have successful reading comprehension strategies and writing skills tend to create more coherent historical arguments supported by appropriate evidence. “Deeper processing,” as Jennifer Voss and James Wiley contend in light of their own experimental study, “is facilitated by the individual’s prior knowledge, of the specific topic, related topics, and history in general and a more advanced level of general information and thinking skills, such as knowledge of essay structures.”27 Valerie, a student from school #1 who used the VH, comments on her positive research experience: “My interest in history has increased because I’ve learned how many sources you can get info from and to never give up when researching” (TVE-018).

This is to say, then, that students who have already acquired some ability to search and collect sources, skim through them, compare and contrast their arguments, and make a structured argument on the strategic importance of the raid are also more likely to create essays with deeper understanding of the events and actors using multiple historical sources in a critical way. Steve, the history teacher from school #1 who used the VH, recorded the following in his teacher log: “The experimental group used far better vocabulary. . . . The bottom line is the good students got a lot out of the VH, handling it with ease.”

There has been a tendency in computational technology literature to blend critical research with self-advocacy. Supporters of new technologies in education tend to see the positive impact in the marketplace as an indicator of their uncontested potential for classroom improvement. These people, as Kathleen Swan and Mark Hofer argue, “appear to assume that technology is preferable to traditional modes of instruction, that it can make a good teacher better, and that it leads to more student-centered (and therefore preferable) instruction.”28 Findings from this study suggest some positive impact
of the program on student achievement. As Katy, who successfully used the VH for her research, puts it: “I prefer in the computer lab because you can learn it your own way” (TVE-001). Yet the educational community will be better served in the end if researchers look at how specific technologies affect students and how digital programs support or detract from particular kinds of learning and achievement. Instead of presenting narrowly defined case studies of best practices, it may be worth analyzing both the potential for, and challenges of, integrating digital technology in history education. As a matter of fact, this study presents challenges that are critical for further use of digital history.

Sources as Fact Sheets

While students who used the program exclusively increased their overall understanding of history significantly, a majority continued to look at historical sources from a “readerly” perspective. Texts—whether they are print, visual, audiovisual, or artifactual—are examined primarily for their conventional, straightforward messages, not for the subtexts and contextualized meaning they convey. Primary sources are comparable to textbooks in that they contain answers (“facts”) that must be discovered. Students fail to understand the constructed nature of texts and the purpose and perspective of their authors. Charles Perfetti, Anne Britt, and Mara Georgi refer to this readerly approach as “content-based justification,” indicating that students are “considering more what is in a document than the status of the document as evidence.” More problematic, the study reveals that many participants attribute greater importance and reliability to simplified secondary sources, such as textbooks, because they convey intelligible truths that are often concealed in primary sources. As Victoria, a student in school #2, confesses, “in class reading a textbook is better because it’s very hard to find accurate info on the computer” (TOE-019). Kris, from school #1, concurs: “Being given pages and pages of facts and accounts of what happened is boring. It is easier to understand when the information is to the point” (TVE-015).

Consider, for example, this longer excerpt from Pearce (referenced above), a high-achieving student who used the VH for his assignment:

Of the 4,963 Canadians who sailed, 56 officers and 851 other ranks were killed.” There were 1,944 prisoners taken, and only 2,211 returned to Britain (Hamilton Spectator Newspaper Article). By 1:00 PM, the troops had withdrawn, and trapped soldiers had surrendered. The
results were devastating, as less than half returned home (Timeline for Dieppe Raid). There were many lessons learned from the mistakes at Dieppe. The need for fire support provided itself to be one of the biggest lessons, as there was no fire support at Dieppe (Report 128). A more confirming lesson learned was one of weapons. The Allies learned that most weapons performed wonderfully with the exception of the incendiary bullet, which was virtually useless (Notes from the Theatres of War). A battleship was thought to have potentially “turned the tide in our favour” according to Capt. J. Hughes-Hallet. . . . The Germans learned that any attempt to invade the town could be promptly destroyed on the beach (Hamilton Spectator Newspaper Article).

Unlike several of his peers, this student displays a deep understanding of the events and engagement with the content. He provides many factual details about the raid (casualties, timing, weapons, etc.) as well as valuable lessons learned from the amphibious operations. Several historical sources from the VH library, such as declassified reports and a newspaper article, are referenced in support of his argument. In many ways, and for many teachers, Pearce has done exactly what we expect. Facts are correctly presented in sequence and key information from the sources strategically included in the argumentation. What poses a problem from a historical thinking point of view, however, is how the sources are used in shaping the argument. Pearce completely overlooked the nature of the sources and the meaning of the subtexts, naively assuming that documents are bearers of information from a distant past. There is no distinction between primary and secondary sources, between a simplified time line presenting key dates and a declassified report (no. 128) from the Canadian Military Headquarters. The student failed to question the provenance, context, perspective, and credibility of the documents—to employ “sourcing heuristic”31—by asking such questions as: Who created the source? When? From what perspective? How is the information supported or contradicted by other sources? All these questions and others were provided to Pearce in scaffolds and worksheets available directly from the VH program.

With such an engagement with the sources, it would have become possible to realize that Report 128 was produced in England by a Canadian historical officer, Colonel Stacey, two years after the raid, in light of D-Day landing. A critical reading of the sources would also allow for an interesting contrast between Stacey’s retrospective observations and Report 083 from Captain Brown, an officer who participated directly in the raid, or with Report 116, a secret German intelligence report of the battle produced
immediately after Dieppe and offering a very bleak picture of the Canadian operation. Yet, as long as history is understood as a quest to “get the story right,” it is impossible for students to realize that knowing history is more complex and tentative than knowing how to find facts from historical sources and create a content-based justification. For Dennis Shemilt, “many pupils take knowledge about the past for granted because they have done little or no work with sources and have rarely, if ever, been asked ‘How do we know?’” 32

The use of sources as fact sheets is not particular to digital history. Students typically adopt such a naive approach to classroom resources as well. 33 What is at stake for virtual history, however, is the assumption that the rich volume of multiple-perspective sources available electronically favors historical reasoning. This cannot be accomplished with primary sources alone. Unless students know how to read texts historically, their engagement will remain simplistic.

**Visuals as Illustrations**

The challenge of knowing the past online is not only with historical texts. The VH case on Dieppe contains a variety of visuals, audiovisual and animations, which students also failed to analyze in their essays. There is, for example, an informative German photograph (see figure 2.2) taken minutes after the raid, revealing crucial details on the terrible slaughter that Canadians faced upon landing on the well-guarded beach of Normandy. The dead bodies lying on the shore, the brand-new Churchill tanks immobilized in the pebbles, and the smoking landing crafts hit by the German artillery are all important pieces of information in understanding the level of preparedness and firepower of the German forces. The photograph also provides a powerful empathetic window into the chaotic experiences of Canadian soldiers who landed on the beach at Dieppe.

Yet students from this study continued to see visuals as “illustrations,” not as “evidence.” 34 They did not view themselves as historical agents, as potential interpreters of nonverbal texts that convey particular meanings about the past. “Visual texts,” as Walter Werner observes, “are more than ‘things’ or instructional means set before students; their meanings emerge during interactions with readers (viewers).” “To think of images independent of readers,” he goes on, “is naive, for they do not speak apart from interpreters.” 35 As with historical texts, analyzing visuals for historical interpretation requires a set of heuristics that will ultimately turn imagery sources into evidence for particular inferences. With this approach, the authority of
visuals is shifted from the photographer to the questions and inferences that interpreters formulate about them.

Surprisingly, today’s textbooks are filled with authentic photographs and colorful graphics that have replaced the seemingly dense, unintelligible content of earlier versions. Still, students are not educated in a classroom environment that encourages them to become historical interpreters of visual texts and animated objects. For Hofer and Swan, “Just as the reader must consider context, point of view, audience, and other keys to understanding textual historical documents, one must view images in much the same way. . . . Like analyzing textual documents, the strategies for reading historical and contemporary images do not necessarily develop naturally and must be explicitly taught.”36

With the arrival of high-speed Internet and augmented reality technology, users now have instant access to visual information about the real world that becomes interactive and digitally usable. In history, such developments have led to the design of simulations and augmented reality games (ARGs) such as Reliving the Revolution. These “serious games” engage learners in historical challenges and encounters with authentic visuals and animated objects about the past. Findings from this study suggest that despite a high penetration of such technology in young people’s lives, many students continue to employ a video game approach to visual sources in the history classroom. Instead of reading them as evidence, they view them as “cool” illustrations that enhance the reality of past times.
Clearly, engaging students in digitally enhanced inquiries forces them to think differently about history and the subject matter. Storytelling, textbook reading, lecture notes, and heritage consumption must inevitably give way to active participation in investigating the distant, foreign past, and in generating evidence-based interpretations. For some, the progression in thinking historically is colossal and far from linear between the variables used in this study. In some instances, students can provide a sophisticated understanding of history (e.g., what history is) and in others (e.g., use of evidence) offer very naive ideas. As Peter Lee and Rosalyn Ashby observe, “it is possible that development in different conceptual areas may occur at different times.”

For others, this digital approach to history learning represents a significant departure from their comfortable schooling “path of least resistance” and their intuitive learning outside the school. For Cassey, a student from school #2, the overall experience could be summed up in these terms: “I found your program pretty boring. I would have preferred to have teacher lecture me on it or read it in the text-book. . . . The way it was written was hard to understand. The language used in the text-book is simpler. The sound effects and animations in the program, however, were pretty successful” (TOE-024).

Cassey is far from alone. More than 60 percent of students in this study reported preferring either classroom teaching or a combination of teacher-computer to virtual history. This percentage was even higher among students from school #2. Reasons given by students range from the familiarity with the teacher’s style; the unchallenging nature of classroom lectures; the difficulty of navigating and analyzing multiple texts (even with online scaffolds); deep confidence in simplified textbook stories; and finally classroom interactions with the teacher, students, and learning objects. Samuel, a student who used the VH in school #1, said, “I personally prefer learning Canadian history in class because we go through it and you don’t need to look for your own information” (TVE-017). For Alex, another student who used the VH, “it’s better in the lab, because it’s more fun; however, it is distracting” (TOE-019).

For us in digital history, these are surprising comments. What could account for such critical remarks from students who performed relatively well with the computer program? How can digital natives, born and raised with technology, prefer classroom instruction to a computer lab activity and claim to be distracted by online learning? There is no simple answer to these startling yet fundamental questions. Despite remarkable progress in digital history over the years, we know very little from empirical studies. Results are still scarce and scattered and generalizations too problematical at this point.
Although it is difficult and tentative to provide any firm conclusion, it is possible to present certain hypotheses that may help explain the results in terms of educational practice and students’ experiences.

First we must look more carefully at current education practices. Many history teachers in Ontario and elsewhere continue to rely extensively on storytelling and direct classroom instruction in the form of lectures and textbook reading. Despite successive waves of curricular reforms in the province, which emphasize active instructional strategies, authentic evaluation, and experiential learning, classroom teaching remains relatively traditional and teacher-centered in many public schools. For Barton and Levstik, the pressure to conform to conservative educational cultures, to control student behaviors and classroom routines, and to cover content knowledge for examination places teachers in unworkable situations. “In one study of preservice teachers who had engaged in a document-based methods course,” they argue, “participants made it clear that they were unlikely to use such approaches in the classroom.”

Writing in the French Canadian context, Robert Martineau found that most classrooms observed were characterized by teacher lecture, reliance on the textbook, and the memorization of facts. According to Ken Osborne, this finding is “consistent with other data, and with a long record of commentary on the unsatisfactory state of history teaching in Canada stretching back almost a hundred years, but we simply do not know whether the situation is different in other parts of Canada today.”

With this state of affairs, it is no surprise that many grade 10 students from this study have great difficulty learning about the past using an experiential, student-centered approach fundamentally different from their earlier schooling experience. As long as teachers see history as “a mere accumulation of facts or stories,” Robert Bain concludes, we should not be surprised that they “transform curricular or pedagogical moves designed to promote student meaning-making back into lessons that merely transmit facts.” Learning to think historically necessitates a particular epistemology of the text that cannot be equated with note taking and general reading skills emphasized in school programs. The Ontario curriculum places great emphasis on literacy across subject areas. As the Think Literacy document of the Ministry indicates: “When a math teacher demonstrates how to skim and scan for signal words to help students solve complex math problems, these skills also prepare them to read any subject text more effectively.”

This process of literacy homogenization, which suggests that learning to read math problems is helpful for historical learning, obscures the disciplinary challenges of learning to think like historians. Wineburg is thus correct to claim that “learning about disciplines is not simply a matter of acquiring new knowledge; it entails examining previously held beliefs.” Students
cannot see contextualized meaning in historical (sub)texts if they do not believe they exist in the first place. Understanding what happened at Dieppe from the perspective of a Canadian or German soldier is thus more complex than retrieving and putting together a set of facts about the raid. Reading history is not simply a process of reading about the past. It is a particular way of thinking and engaging with the past. The British research experience suggests that through changes in students’ conceptions of history it becomes possible to envision progression in understanding the past critically. But what is puzzling from this study is that the selected teachers were not traditional. They were history majors who believed deeply in inquiry-based learning and rarely lectured in class.

This experimental study was designed to assess the value of a digital history program on students’ performance. The role of the teacher was therefore restricted significantly in the computer lab in order to limit—and ultimately control—this variable. In reality, however, classroom teachers have a greater role to play in the design, implementation, and delivery of lessons—whether or not they rely on educational technology. “It is important to remember,” Bain cautiously observes, “that the computer scaffolding does not substitute for instruction, but rather supports students in developing disciplinary habits after they have had at least initial instruction in each procedure.”

The history teacher from school #2 who used the VH for the study clearly supports this approach to technology in light of his experience:

Over and over, I heard the same refrain from the students, which was “why can’t you just tell us?” Many students found the number of sources to read, and the amount needed to read confusing and intimidating. I think that the final task they were assigned—which was a research project resulting in an argumentative essay—required either much more teacher direction than the study allowed or much more concrete direction on what to do with each source.

Expertise in teaching history as a form of knowledge in the twenty-first century depends on access to and use of complex systems of various knowledge—including technology. Too often, however, knowledge of technology in education is considered in a vacuum, disconnected from disciplinary knowledge and pedagogy, as if an understanding of how technological affordances work translates into sound practice. Students’ and teachers’ familiarity with technology does not automatically turn them into disciplinary experts, as evidenced in this study. Results confirm that building a community of inquiry in the twenty-first-century classroom cannot be accomplished with educational technology alone. Even if teachers and students possess,
to varying degrees, technological knowledge about software and hardware, they must be attentive to how learning in the discipline might be improved by “complex relationships between technology, content, and pedagogy, and [by] using this understanding to develop appropriate, context-specific strategies and representations.” In other words, using technology in educational design cannot be understood simply as an add-on component to established coursework. It must lead to a fundamental reconsideration of disciplinary content knowledge and pedagogy so as to develop a coherent educational framework that recognizes how teaching and learning can be changed as a result of technological affordances.

The pedagogical shift in approaching technology in history appears to be even more necessary with students who have learning and/or language difficulties. Although most grade 10 students in this study reported having high computer literacy skills, many struggled to engage actively with the various functionalities of the VH program (e.g., scaffolds, learning objects, and sources). This was particularly evident with students from school #2, which has a very large number of immigrant students for whom English is a second language. In the face of Prensky’s grand claim, not all students are digital natives. They may be born with technology, but their relationship to it is often practical and intuitive. Their immersion in and use of interactive technological tools do not necessarily enhance their inquisitive mode of learning. In fact, recent evidence suggests that “a significant proportion of young people . . . do not have the levels of access or technology skills predicted by proponents of the digital native idea.” It is not clear from research that the high level of interactivity and need of multiprocessing skills so prevalent in computer games and simulations have direct correlation with history learning. Generalizations about digital natives do not take into consideration the various cognitive differences in students of different ages and cultural-linguistic backgrounds. What students do with technology outside the school may have little or no significance to the competencies needed to engage in disciplinary inquiries. As Sue Bennett, Karl Maton, and Lisa Kervin conclude: “students’ everyday technology practices may not be directly applicable to academic tasks, and so education has a vitally important role in fostering information literacies that will support learning.”

Mark, a history teacher in this study, reflects on how best to use technology with his grade 10 students in these circumstances:

Our students have never been exposed to such a large collection of primary source materials; it is the richness of the materials that created both the most positive responses (“Cool!” “Hey have you seen
this picture?!” “I can’t believe they did that”) and the most negative (“There’s too much to read and it all sounds the same to me,” “What is the point of all these pictures?,” “What are we supposed to be doing?!”). . . . I would have liked to be able to use the VH for a less challenging question or a more concrete and directed activity.

Technology in education is inevitable. Yet no single technology can be universally applied by teachers. Just as progressivism never entirely replaced formalism in twentieth-century education, digitally enhanced inquiry-based learning methods may never completely displace textbook-centered instruction in the classroom. Teaching is a complex human activity that cannot be reduced to a set of pre-established pedagogical steps that invariably produce positive outcomes. Saye and Brush concur: “technology is no panacea for the challenges students and teachers face when engaging in disciplined inquiry into social problems.”49 Indeed, teachers must be flexible in their use of knowledge to design successful lessons adapted to their audience with the most effective learning tools at their disposal. Digital history programs, such as the Virtual Historian, provide an additional tool to achieve inquiry-based learning in history.

Important questions remain unanswered, however. We need to know more about how teachers can design lessons and meaningful activities with technology and, perhaps more importantly, how digital programs can be used to build on students’ prior knowledge and learning preferences and to develop new epistemologies and ways of thinking about the past. How can it be that digital natives, born and raised with technology, still prefer classroom instruction to a computer lab activity and claim to be distracted by online learning objects? How is it that, despite the passionate and compelling scholarly discourse in recent years relating to meaningful learning and teaching in history, students continue to ask: why can’t you just tell us? We urgently need some empirical studies and practice-informed answers to these pressing questions.

NOTES


3. Prensky, 1.


7. Wineburg, 7.


18. Milson, 344.


20. Bain, 109; emphasis added.


24. In order to preserve the identity of participants, all the names of students and teachers have been changed to pseudonyms and research codes.


29. Wineburg, 69.


31. Wineburg, 76.

32. Shemilt, 44.
“Why can’t you just tell us?”


34. Dickinson, Gard, and Lee, 15.


42. Bain, 104.


44. Wineburg, 152.

45. Bain, 113.


