



FALL/WINTER 2018



## The Futuristic Past:

Technology, Memory and  
History in the Age of AI



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CANADIAN ISSUES IS PUBLISHED BY



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Canadian Issues is a quarterly publication of the Association for Canadian Studies (ACS). It is distributed free of charge to individual and institutional members of the ACS. Canadian Issues is a bilingual publication. All material prepared by the ACS is published in both French and English. All other articles are published in the language in which they are written. Opinions expressed in articles are those of the authors and do not necessarily reflect the opinion of the ACS. The Association for Canadian Studies is a voluntary non-profit organization. It seeks to expand and disseminate knowledge about Canada through teaching, research and publications.

Canadian Issues acknowledges the financial support of the Government of Canada through the Canada History Fund of the Department of Canadian Heritage for this project.

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## LETTERS

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INTRODUCTION

## SEEKING A MIDDLE GROUND FOR HISTORY BETWEEN DIGITAL DELIGHT AND DREAD

RANDY BOSWELL

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Randy Boswell is an associate professor at Carleton University's School of Journalism and Communication. He holds an M.A. in Canadian Studies and is a long-time Ottawa journalist who developed a unique national history news beat with the *Ottawa Citizen* and *Postmedia News*. He has recently published academic studies on aspects of Canadian environmental and archaeological history, but continues to produce stories about the past for wider audiences. These include a 2016 article for *Rolling Stone* magazine revealing the true origins of Elvis Presley's breakthrough hit *Heartbreak Hotel*, and a 2017 feature for *CBC News* titled "Solving the Mystery of the NHL's First Game."

For a journalist and writer of popular history, these are pretty exciting times. Background information that used to take many hours or even days to compile can now be gathered online in mere minutes. Instead of roaming library shelves, interviewing experts or semi-randomly scrolling through microfilm of 19th-century newspapers, I can instantly, directly and efficiently tap remarkably rich veins of research through Google Books, newspapers.com, biographi.ca (that's the digital version of the wonderful *Dictionary of Canadian Biography*), thecanadianencyclopedia.ca and, yes, the much-mocked but incredibly useful Wikipedia. Then there's Library and Archives Canada's amazing web portal to so much of the country's digitized documentary heritage, including countless historical photographs and other vintage images. Toss in a few other treasure troves — the Virtual Museum of Canada, canadiana.ca, ancestry.ca, archive.org — and it's no exaggeration to say that, today, the

nation's and even the world's history is essentially at my fingertips.

But there are caveats to consider in this seemingly boundless universe of digital delights for history-minded citizens. Some of the above-mentioned resources are not available for free, so a prof with an annual research allocation has a distinct advantage over millions of other people when it comes to accessing subscription-based, high-quality, online historical material. There's a worrisome murkiness, too, about the way Google searches direct all of us to certain websites using algorithms we know are constructed to serve advertisers first and knowledge-seekers second. And while social media networks offer many benefits to users, the way they shape our worldviews through filter bubbles and echo chambers — ultimately providing warped pictures of reality, past and present — imposes a new kind of responsibility on "netizens"

to be wary of what they're absorbing online.

Apart from all that, there are genuine concerns about the yet-unknown, still-evolving impacts of the digital revolution — from hyper-fast computers to super-smart phones to nascent commercial applications of Artificial Intelligence like the ever-helpful Siri or Alexa — on our cognitive capacities, our habits of mind, our inter-personal relationships.

In this edition of *Canadian Issues/Thèmes Canadiens*, our contributors examine a wide range of these phenomena — encompassing both the exhilarating and the disquieting — and consider the potential implications for the way we learn about history. How will the seemingly transformative technologies that abound in the early 21st century reshape the way we perceive the past, the way we recall its landmark moments and lessons, the way we communicate and critique our collective heritage?

More specifically, we asked our contributors: How is technological change altering our relationship with history? While the digital revolution has enabled greater access to historical resources and knowledge, there is a growing awareness that the same new tools that enhance our capacity for information storage, retrieval and communication — all widely available to consumers — are challenging traditional ways of remembering, researching and presenting the past.

An assumption underlying this publication is that the impact of technologies on the teaching and learning of history and other related disciplines is an area of inquiry that merits considerably greater attention. An August 2018 survey by Leger

Marketing commissioned by the Association for Canadian Studies — its results explored in detail in ACS president Jack Jedwab's submission in these pages — reveals that seven in 10 Canadians agree that, "with the Internet and technology, they don't need to remember as much as they used to." The survey results point to several other areas where technologies affect the relationship between memory, knowledge and interpretation, all of which are critical to the way we learn about history and related subjects.

To further stimulate thinking about these issues, the ACS and Historica Canada co-hosted a one-day forum in Toronto on Nov. 14, 2018 on the theme "Technology, Memory and History", an event attended by most of the contributors to this volume.

Forum participants were welcomed by Dr. Guy Berthiaume, Librarian and Archivist of Canada, and excerpted here is part of the address he gave in which he discussed the LAC's strategy to be "*open* to new technologies, *learn* about new tools for uncovering our past, and *listen* to our clients and partners" as the Ottawa-based institution navigates the opportunities and challenges of the digital age.

Education professor and neuroscientist Dr. Rob Cassidy, director of Concordia University's Centre for Teaching and Learning, argues that the advent of disruptive digital technologies, which can alleviate the mental burden of remembering mere facts about history, could herald an ambitious new era in history education in which "higher-order thinking skills" — including an enhanced ability to scrutinize and challenge inherited narratives —

gain priority over rote learning.

Dr. Jaigris Hodson, associate professor in the College of Interdisciplinary Studies at B.C.'s Royal Roads University, presents the case that today's historians must "work to ensure that people have access to an accurate, complete, and diverse history in an age of algorithmic filtering" — an era dominated by the corporate interests of online knowledge gatekeepers.

Dr. Stéphane Lévesque, an associate professor of history education and Director of the Virtual History and Stories Lab at the University of Ottawa, argues the need for much more research into and analysis of the intersections between technology and the learning of history. A key goal for educators, he states, must be "to leverage technology as a tool to critically engage their students to use the Internet in intelligent ways."

While wary of the potential pitfalls of technology's impact on historical thinking, U.S. scholars Moysés Marcos and Benjamin C. Storm conclude in their essay that society should be able to leverage the tools of digitization, Artificial Intelligence and other advances to achieve a net positive outcome. "Greater access to information and data should improve human understanding of things," they state, "and thus improve what we know and what we can know from and about 'history' and ourselves."

To University of Waterloo historian Ian Milligan — author of a forthcoming book titled *History in the Age of Abundance? How the Web is Transforming Historical Research* — the technological leaps of the digital age have brought about unprecedented opportunities for historians but also previously unknown challenges. Figuring out first how to

effectively preserve and then how to access and interpret the unfathomable number of documents being produced daily since the dawn of the Web era has emerged as an urgent priority for the discipline of history, he argues.

Deborah Morrison, president and CEO of Experiences Canada and former president of Canada's History Society, expresses concern about the distracting and alienating effects of technology among youth. But she also asserts that the "value and relevance of teaching history has never looked brighter" — as long as the emphasis shifts more to the development of critical thinking, media literacy and other skills vital to living in a digital age. "How our history is taught remains the biggest risk," she warns.

Dr. Nancy Salay, an associate professor in the Department of Philosophy and the School of Computing at Queen's University, explores the paradox of a data-rich world in which the ability to transform information into wisdom seems increasingly rare. "We have the potential today for more information than ever before and this availability certainly makes us smarter," she observes. "But as we spend our time mining for data, we are missing the opportunity to *learn*, to make deep conceptual connections."

Anthony Wilson-Smith, president of Historica Canada, takes stock of the strengths and weaknesses of technology as a force for enhancing historical education and knowledge. On the whole, he argues, the Internet has liberated and allowed the mass dissemination of "vast troves of information" — and helped Historica itself reach exponentially larger audiences with online incarnations of its famous *Heritage Minutes* and *The Canadian Encyclopedia*.

But citing the major gaps in high-speed Internet access across Canada, and other inequities and drawbacks that have come with the modern explosion of online information, he concludes that society needs to remain as clear-eyed about the pros and cons of technology as it does about the achievements and failings of history itself.



# DIGITIZATION AND DEMOCRATIZATION: KEEPING AN OPEN MIND ABOUT HOW WE PRESERVE AND SHARE OUR DOCUMENTARY HERITAGE

DR. GUY BERTHIAUME

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Dr. Guy Berthiaume is a Canadian historian specializing in classical antiquity. He has been the Librarian and Archivist of Canada since June 2014. Previously, he was the chief executive officer of the Bibliothèque et Archives nationales du Québec. In August 2015, he was elected to a four-year term as President of the Standing Committee of the National Libraries Section, International Federation of Library Associations and Institutions, based in The Hague, Netherlands. He is also a member of the Evaluation Commission of the International Council on Archives. As the Librarian and Archivist of Canada, he is an ex-officio member of the Historic Sites and Monuments Board of Canada. In November 2018, Dr. Berthiaume gave the opening address at Technology, Memory and History, a Toronto forum organized by the Association for Canadian Studies in collaboration with Historica Canada. The following is a condensed version of Dr. Berthiaume's remarks.

I'd like to briefly talk to you about Library and Archives Canada and the confluence of the preservation of our shared history and heritage and the use of technology to do so.

Four and a half years ago, when I became the Librarian and Archivist of Canada, I committed myself to making LAC an institution that listens to its clients and its partners. And by listening — even just a little — it was easy to understand the impact and demand for technology that keeps up with societal demands in the sharing of our documentary heritage.

We live in an age of the immediate, where response time is expected to be instantaneous, and where attention spans are the length of a soundbite. In

this kind of world, it is easy for us to lose sight of the past and to ignore the future. Only the present seems to matter, and that present is in constant flux.

This said, many of our recent initiatives at LAC only make sense if we keep in mind the tremendous democratization of knowledge we have seen in the wake of digitization. At one time, only graduate students, faculty and researchers were allowed to visit national libraries. These days, thanks to the Web, anyone and everyone — not only from our own country, but from anywhere in the world — has access to our collection. This has awakened an appetite for knowledge that we frankly find difficult to satisfy.

So how do we maintain a continuum of past, present and future? With solid, robust and trustworthy memory institutions. And that's what LAC is all about.

Let me give you a few examples of the way we use technology to engage Canadians.

Last year, 2017, was an important year for us, the year of the 150th anniversary of Canadian Confederation, and we took the opportunity to share the richness of our collection with our customers, partners and the general public.

One such new initiative included the National Heritage Digitization Strategy (NHDS), developed with major Canadian memory institutions: public libraries, academic libraries and archives, provincial archives, national associations of archivists, librarians, historians and museums. The idea is to coordinate our approach to digitizing the hundreds of collections found in Canada's memory institutions. Needless to say, a co-operative system such as the NHDS only makes sense if its members do their own digitization to feed into the platform.

For LAC, our greatest digitization initiative to date has been the digitization of our First World War personnel files. These files are a major resource for genealogy and historical research. It took us four years and in July 2018, we finished the work, in time for the 100th anniversary of the signing of the armistice. Over 620,000 files are now online, some 32 million images.

LAC is always looking for opportunities to find new ways of sharing our history and heritage. By working together, with technology, we can make a profound difference both in the way our past is

understood and our future is informed.

In such a context, it is imperative to ask: what should be preserved?

Edd Wilder-James, a researcher at Google, underlines a popular attitude towards records and data. I quote: "When you can, keep everything."

Wilder-James is a specialist in machine learning. He needs big data, and lots of it. But big data is no longer the exclusive domain of computer scientists – *historians* are increasingly demanding it.

The challenge for archivists is that keeping everything is not realistic. Aside from the huge costs involved, a "keep everything" policy threatens to drown history by preventing the historians of the future from finding themselves in the mass of billions of documents.

Wilder-James might answer that we must have confidence in the fact that future generations will be able to invent software to sort big data and find what is relevant.

Be that as it may, I believe that this posture requires resources that no institution readily has. Not LAC, not the National Archives of the U.K., not the National Archives and Records Administration of the United States.

So what is the alternative? We can continue to be *open* to new technologies, learn about new tools for uncovering our past, and *listen* to our clients and partners about how to continue to make our documentary heritage useful for the present and the future.

# THE NEW ARCHIVISTS: SOCIAL MEDIA, MEMORY AND HISTORY

DR. JAIGRIS HODSON

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Jaigris Hodson, PhD, is an Associate Professor in the College of Interdisciplinary Studies at Royal Roads University in Victoria, B.C. Dr. Hodson's research focuses on the social implications of information design on social media and other emerging technologies. She was recently awarded a MITACS Canadian Science Policy Fellowship, placing her for a year with the federal government's Environment and Climate Change Canada, where she is investigating how Canadian scientists can best communicate science and climate change information to the Canadian public.

## OUR DIGITAL LIVES

In a time of growing populism around the world and here in Canada, many are wondering: if we forget our world history, are we doomed to repeat it? This provocative question may be increasingly relevant. In a recent Leger survey commissioned by the Association for Canadian Studies, seven out of 10 Canadians felt that "with the Internet and technology they don't need to remember as much as they used to" (Jedwab, 2018). And many also think "technology makes me smarter" since it helps them remember important historical dates, people and details of historical events. But what are the consequences of Canadians turning to dominant social platforms like Facebook, Google or Twitter for answers about history? This essay will consider the consequences of technologized history by looking at how algorithmic selection may play a role in a future historical archive.

Canadians love digital media. Ninety percent of Canadians use the Internet (CIRA, 2018), and most like to be connected on social networking sites. According to a recent report by the Social Media Lab, 84% of online Canadian adults are on Facebook, 59% are on YouTube, 46% are on LinkedIn and 42% are on Twitter (Gruzd et. al., 2017). StatCounter (2018) reports that profit-driven and advertiser-supported search engines made up 99.5% of search engine market share in Canada over the last year, with Google taking 93%, Bing, 3.79%, and Yahoo, 2.24%. This may be why the Leger survey found that Canadians like to turn to social media and Google searches when they have a question about history.

What might be the consequences of 'outsourcing' memory to digital tools? In this essay, I argue that by outsourcing our memories to social media, Canadians risk developing an archive guided more by a marketing logic than by historical consciousness.

I begin by adopting a media ecology perspective to consider the role that communication media play in how we relate to history. Then, I show how the political economy of social media platforms influences what gets archived. Finally, I make some recommendations for how historians could work to build digital literacy for those who turn to social platforms for help with historical remembering.

### THE MEDIUM IS THE ARCHIVE

Canadian communication theorist Marshall McLuhan famously wrote “the medium is the message” (McLuhan, 1964). By this, he meant that the media that we use to communicate with one another (or to record our history) leave an indelible mark on the message. A dominant communication medium can impact how we interact with one another, which has the potential to create social and societal shifts. This is the central tenet of media ecology: the dominant media in an historical period set the tone for human social interaction.

History, as we know it, is possible mainly due to the written word. Walter Ong, author of *Orality and Literacy: The Technologizing of the Word* (1982), suggested that history in a pre-literature culture cannot be remembered in the same way and with the same detail as it can in a literate culture. History in an oral culture requires a living vessel in order for it to be transmitted, and in the telling and retelling of oral histories, stories are adapted and changed depending on the storyteller. In a literature culture, in contrast, the text can exist independent of the person who records it. This text can then be built on by others without those people having to be present. It persists through time and over distance.

This divorcing of time and space from communication is further accelerated by electronic media – this first occurred via the telegraph. The telegraph separated communication from space and time, since a message could be sent in one location and immediately received in another far distant one – a far cry from an oral type of communication where sender and receiver had to be close together to communicate (Carey, 1983). Thus the telegraph can be considered, in some ways, to be the great-great grandfather of Internet-mediated communication. It was the first medium to connect people despite geographic and temporal distance – a forebear of the networked society.

But something changes when communication becomes instant. And in some ways an instant communication hearkens back to oral culture. This is a phenomenon Ong termed “secondary orality”. Due to the prevalence of electronic media, we live now in an age where we have some characteristics of a literate culture and other characteristics of an oral culture. For example, on social media we often use text to communicate; however, unlike the printed word, text is more ephemeral on social media. It’s hard to keep your own record of social media posts, and many web pages or social media accounts are not reliably archived. Even if they were, it’s difficult to wade through the large volumes of information to find and record meaningful history. There is so much information being published online, all the time, that we risk losing meaning, or outsourcing meaning-making to those who can filter the deluge of information.

### SOCIAL MEDIA AND THE NEW ARCHIVISTS

The problem with social media as a tool for recording

history is that we require filtering of the information in order to make that history accessible (Shirky, 2008). Currently, social media platforms engage in frequent and efficient filtering; however, that filtering is serving a purpose of connecting advertisers with audiences. Since advertising is the main business model supporting social media platforms, the algorithms are optimized to keep and hold the attention of users. They do this by profiling users as data points, and then delivering filtered content that is novel, dramatic or emotional. These filters are optimized to be entertaining. They are not optimized for accuracy, fact or historical significance (Vaidhyathan, 2018).

In a sense, content filtering algorithms, and those engineers who program them, are the archivists of the social media age. They make decisions about how to structure and make sense of information that will one day form part of the historical record. And they do so by making decisions based on advertising dollars. Content filtering algorithms on sites like Facebook, Google, YouTube and Twitter provide the user with novel and popular information, because doing so helps these platforms hold user attention. In addition, visibility on social networks is boosted for those who are willing or able to buy space. Advertisements on these platforms are more likely to be seen by many people because companies pay for the privilege.

History has always been chosen by gatekeepers. Unfortunately, in the case of algorithmic filtering, the processes are not transparent, they can be changed at any time by those who code and operate the site, and they always favour advertisers over all other users. This may not be the best way to create or manage a digital record of history, but it is a

great way to support the business model of social media platforms. Thus, historians are presented with a challenge: How do we work to ensure that people have access to an accurate, complete, and diverse history in an age of algorithmic filtering? If people prefer to access key historical facts using social media, how can we ensure they are not simply accessing the information that was boosted by those who could afford to pay for it?

There are no easy answers, but one possible part of the solution lies in providing information literacy to young Canadians as we teach them about history. The discipline of history can teach people to critically evaluate sources to find the most accurate representations of historical reality. This skill is needed now more than ever. Since digital media makes it possible to outsource our memories, we don't have to spend as much time teaching specific names or dates as part of the practice of history. To take the place of these skills, an information literacy approach is necessary. Teaching people how to evaluate online sources, look beyond the most popular content, and look for historical data beyond social media platforms will be key skills for developing an historical consciousness among the connected generation. This could be the first step to the creation of new tools and techniques for finding and filtering history outside of the commercial algorithmic gatekeepers.

**REFERENCES**

Jedwab, Jack. *Technology, Memory and Knowledge*. Presentation for ACS/ Historica Symposium Nov 14, 2018. Toronto, Canada, 2018.

CIRA. *Canada's Internet Factbook 2018*. Retrieved Nov. 22, 2018 from: <https://cira.ca/factbook/canada%E2%80%99s-internet-factbook-2018>, 2018.

Gruzd, Anatoliy, Jenna Jacobson, Phillip Mai, & Elizabeth Dubois, E. *The State of Social Media in Canada 2017*. Report. Ryerson University Social Media Lab. <https://dx.doi.org/10.2139/ssrn.3158771>, 2017.

McLuhan, Marshall. *Understanding Media: The extensions of man*. Boston: MIT Press, 1994.

StatCounter. *Search engine market share Canada*. Retrieved Nov. 22, 2018 from <http://gs.statcounter.com/search-engine-market-share/all/canada>, 2018.

Vaidhyanathan, Siva. *Antisocial Media: How Facebook Disconnects Us and Undermines Democracy*. London: Oxford University Press, 2018.

Shirky, Clay. *It's not information overload. It's filter failure* [video]. Retrieved Dec. 7, 2018 from: [www.youtube.com/watch?v=LabqeJEOQyl](http://www.youtube.com/watch?v=LabqeJEOQyl), 2018.

Carey, James W. Technology and Ideology: The case of the telegraph. *Prospects*, 8, 303-325, 1983.

Ong, Walter. *Orality and Literacy: The Technologizing of the Word*. London: Routledge, 1982.

# **COGNITIO RERUM: SOME PERSPECTIVES ON MEMORY, TECHNOLOGY AND THE FUTURE OF HISTORY**

MOYSÉS MARCOS AND BENJAMIN C. STORM

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Moysés Marcos earned his PhD in History from the University of California, Riverside. His research centres on late Roman historiography and political culture, particularly in the fourth-century empire. Benjamin Storm is an Associate Professor of Psychology at the University of California, Santa Cruz. His research is focused on human memory with an emphasis on the causes and consequences of forgetting.

In studying history, the “understanding of things” (*cognitio rerum*) is of fundamental importance.<sup>1</sup> For those who produce historical narratives, the advent of scanned and transcribed texts and images on websites has proven a boon in searches for that understanding. The time required to conduct searches for useful references to persons, places and things within academic monographs, journals and other publications has decreased dramatically in the digital age. Now, more and more literary texts are able to be placed in dialogue with one another in studies on the influence and continuity of language within any given society whose literary remains are digitized. For the learner, too, technology in the form of Internet and library catalogue searches has expedited the completion of required assign-

ments and assisted in the necessary understanding of historical actors and events that underlie them. But knowing that something is easily accessible and stored externally, such as in a digital archive or in a file on one’s own computer, undoubtedly has decreased interest in and the need for remembering names, dates and even outcomes of events – the facts by which history is written, discussed and understood. Technology thus has had a direct impact on historical awareness.

Technology’s relationship with history, however, has not been limited to new modes and mechanisms for accessing archived information. There has also been an advent of new perspectives and methodologies that have influenced how we remember or even

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1 The Latin noun *cognitio*, meaning “The act of getting to know (a fact, subject, etc.)” or “comprehension,” among other things (*Oxford Latin Dictionary*, s.v. *cognitio*), is the source of the modern English term cognition, which denotes complex mental and neural processes, and *rerum*, from *res*, at its most basic can mean “things.”

conceive of history and how we go about achieving historical understanding. In our view, “History,” as a discipline within the Humanities and Social Sciences, is not about seeking “the Truth” with a capital “T” but about seeking small truths, that is, facts, from which a historical image is able to be (re)constructed and then interpreted. From this perspective, history is not the (re)telling of the past exactly as it was and as it unfolded before contemporaries that we completely understand,<sup>2</sup> rather it is a study of historical remains in order to improve our knowledge and understanding of people, products and processes. At best, history can provide only approximations and probabilities of “Truth” regarding the past. Thus, “the future of history” lies with improving those approximations and probabilities and the means by which they are reached.

In the writing and understanding of history, contemporary literary sources have been paramount. And they should continue to serve as the foundation of historical writing and be approached by each one of us free of preconceptions; the use of secondary literature, which offers scholarly interpretations of contemporary sources, can provide a way by which to gauge the range of possible interpretations that these sources can be subjected to. This approach is vital to the development of the skills that are needed to analyze historical remains

and sources critically. And improvements on how we understand the orthography, language and syntax of primary source texts and the underlying aims and methods of their authors have improved historical narratives and what we can learn from and about the past.<sup>3</sup>

Historians have long been familiar with qualitative analysis of people, products and processes. Only relatively recently, however, has quantitative analysis been adopted more widely as a method for advancing our knowledge of the ancient world. For example, Keith Hopkins,<sup>4</sup> C. F. Noreña,<sup>5</sup> and E. W. Sauer<sup>6</sup> have all employed a quantitative and interdisciplinary approach to using historical evidence in new and illuminating ways. These scholars have explored and analyzed birth and mortality rates, the circulation, messaging and potency of hard currency, and the function of texts inscribed on specific types of stone columns in the Roman world using approaches that have enhanced historical understanding and so history. The very concept of an interdisciplinary approach is itself a byproduct of technological advances, which will continue to necessitate revisiting and updating approaches to how we view and study history. More often than not, such updating has led to advancements in our understanding of the purpose of products and processes that get us closer to a greater understanding

2 On this view, see a lengthy but illuminating essay of Peter Brunt, *The Fall of the Roman Republic and Related Essays* (Oxford: Oxford University, 1988), 1–92, esp. 87–92.

3 For example, see R. W. Burgess, “History vs. Historiography in Late Antiquity,” *Ancient History Bulletin* 4.5 (1990): 116–24 and M. Marcos, “A Tale of Two Commanders: Ammianus Marcellinus on the Campaigns of Constantius II and Julian on the Northern Frontiers,” *American Journal of Philology* 136.4 (2015): 669–708.

4 Keith Hopkins, *Death and Renewal. Sociological Studies in Roman History, Volume 2* (Cambridge: Cambridge University, 1983).

5 C. F. Noreña, *Imperial Ideals in the Roman West: Representation, Circulation, Power* (Cambridge: Cambridge University, 2011).

6 E. W. Sauer, “Milestones and Instability (Mid-Third to Early Fourth Centuries AD),” *Ancient Society* 44 (2014): 257–305.



of the cognition of those people and societies under historical scrutiny. And improved understanding of human cognition in turn can get us to a greater understanding of what we were, what we are, and what we yet might be. Dates and the names of people and places by themselves mean nothing. What matters is their relation to one another and to those individuals and communities that gave them meaning, and why.

One might argue that as the access and flow of information to researchers, learners and consumers of history increases — owing to advances in digital technologies such as the Internet — the need to form or encode memories of that information will decrease.<sup>7</sup> In short, access to information may be used only to fulfill the needs of the moment. The result of this may be, as one might put it, a lessened or more superficial historical awareness, which then may lead to a decrease in the perceived value of the study of history as a worthwhile pursuit. Indeed, the practice of storing facts externally has the potential to alter the nature of expertise fundamentally. The ability to use information rapidly and flexibly *and* to integrate it with other information — processes that are likely to be critical for developing a deeper understanding of history — may largely depend on having information stored in actual minds as opposed to the transactive memory systems<sup>8</sup> or part-

nerships formed between researchers and digital technologies. We are optimistic, but it remains to be seen, in the undertaking of historical inquiry, the extent to which human intelligence and technology can be utilized or developed in ways that maximize the potential benefits of relying on such partnerships while minimizing the potential costs.

Research has shown that people can become habitually reliant on the Internet<sup>9</sup> and that using the Internet can lead to illusions of knowledge that make people overestimate what they know about a given topic.<sup>10</sup> And because people often select their own sources, they can easily find themselves in “information bubbles” or “echo chambers” where most of the information to which they are exposed confirms their preconceptions. In a world of “fake news” and social bots, it has also become increasingly difficult to ascertain whether a given source can be trusted, and people tend to assume that information is true until proven otherwise.<sup>11</sup> To be sure, even when information is known to come from an untrustworthy source, it can still exert an influence if the identity of that source is eventually forgotten, as it often is. These influences pose dangers that would seem more likely to affect everyday consumers of history than academic researchers, but there is no reason to think that anyone would be completely immune. Indeed, there is substantial

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7 B. Sparrow, J. Liu, & D. M. Wegner, “Google Effects on Memory: Cognitive Consequences of Having Information at Our Fingertips,” *Science* 333 (2011): 776–778.

8 D. Wegner, “Transactive memory: A contemporary analysis of the group mind,” *Theories of Group Behavior* (New York: Springer-Verlag, 1986): 185–208.

9 B. C. Storm, S. M. Stone, & A. S. Benjamin, “Using the internet to access information inflates future use of the Internet to access other information,” *Memory* 18 (2017): 717–723.

10 M. Fisher, M. K. Goddu, & F. C. Keil, “Searching for explanations: How the Internet inflates estimates of internal knowledge,” *Journal of Experimental Psychology: General* 144 (2015): 674–687.

11 D. T. Gilbert., D. S. Krull, & P. S. Malone, “Unbelieving the unbelievable: Some problems in the rejection of false information,” *Journal of Personality and Social Psychology* 59 (1990): 601–613.

evidence from the social and cognitive psychology literatures that people can be oblivious to the sources of their knowledge and beliefs.<sup>12</sup>

Considering these potential drawbacks, the future of history, both in terms of individuals and communities, will be profoundly constrained by the ways in which we interact with and use the Internet and other technologies. And yet, on balance, greater access to information and data would seem to be a good thing. Human cognition has been remarkably adaptable in the face of new technologies, consistently developing new types of expertise in response to new types of challenges, and technologies can be developed in ways that harness human cognition more effectively. Moreover, “information bubbles” and “echo chambers” are not new concepts. Historical writing has consisted of varying selections and interpretations of materials and sources, and sometimes subjectively so, since history began as a field of inquiry. In fact, “history” and “evidence” have been subjected to various definitions,<sup>13</sup> and this is likely to continue. In any case, historical materials and sources are now more readily available, and to a broader and more diverse audience.

Ultimately, technologies like the Internet are simply tools; there is nothing inherently positive or negative about them. It is up to us as consumers and researchers of information to design tools and to take advantage of those already available in ways that bring us closer to approximating truths of what was, what is, and what will be. To deny the poten-

tial of technologies such as the Internet to advance the study of history is to deny the impact that pen, paper and binding, as technologies for preserving information, have already had. Even if a day arrives when potential historians and researchers are implanted with microchips that provide instantaneous access to the most comprehensive and up-to-date information, that information must still be processed carefully to be understood. And that will not change. Historical inquiry, even if undertaken on a short-term basis, still facilitates cognition, and, we would argue, improvement in the human condition by better understanding the range of possible and acceptable actions within a society. In the end, potential limitations notwithstanding, greater access to information and data should improve human understanding of things (*cognitio rerum*), and thus improve what we know and what we can know from and about “history” and ourselves.

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12 A. Koriat, “The feeling of knowing: Some metatheoretical implications for consciousness and control,” *Consciousness and Cognition* 9 (2000): 149–171.

13 For some definitions of “history,” see R. G. Collingwood, *The Idea of History*, revised ed., edited with an introduction by J. van der Dussen (Oxford: Oxford University, 1994), 7–13 and R. L. Cleve, *History of the West to 1500* (Dubuque: Kendall/Hunt, 2004), 1–3. For a classic and fundamental discussion of historical “evidence,” see Keith Hopkins, “Rules of Evidence,” *Journal of Roman Studies* 68 (1978): 178–86.

# WHY WE NEED MORE FINDINGS ON CANADIANS, HISTORY AND TECHNOLOGY

DR. STÉPHANE LÉVESQUE

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Dr. Stéphane Lévesque is an associate professor of history education and Director of the Virtual History and Stories Lab, Faculty of Education, University of Ottawa. In 2011, he was visiting professor of digital history at Umea University in Sweden. His research focuses on students' historical thinking and consciousness, Canadian history, citizenship education, and new media and technology in education. He is a board member of the Virtual Museum of Canada, Canada's History Society and The History Education Research Network/Histoire et éducation en réseau (THEN/HiER), a past advisory board member of the Historica Foundation, past president of the Citizenship Education Research Network and co-chair of the Teaching History interest group of the American Educational Research Association.

At every level of society, technology has radically altered how we think and behave, how we communicate and make “friends,” how we shop and find a partner, and how we learn and make sense of the world in which we live. In the last 18 years, Internet connection/users have increased from 412 million to 3.4 billion worldwide.<sup>1</sup> In the same period, the number of mobile-phone subscribers, measured as the number of users per 100 persons, rose from 12 to over 98! As technology continues its widespread advances in our modern lives, well-established institutions such as schools have to adapt or run the risk of soon being obsolete and replaced. History education is no different. The Association for Canadian Studies (ACS) survey

results on adult Canadians and technology (see page 25) offer useful findings that I will analyze in two ways: what the results tell us, and what they don't tell us – as well as what we urgently need to know.

## WHAT THE ACS SURVEY RESULTS TELL US

Today's younger generation (not only the “millennials,” but the entire 18-34 cohort) is the most technologically dependent group of all Canadians and most likely to feel helpless without technology (helpless without Internet: 58% for 18-24; 61% for 25-34; helpless without smartphone: 60% for 18-24; 64% for 25-34). This group is also most likely to use

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1 Julia Murphy and Max Roser (2018), “Internet,” Published online at OurWorldInData.org. Retrieved from: <https://ourworldindata.org/internet> [Online Resource].

such technologies for functioning and orienting themselves in their daily life: booking appointments, getting around the city, searching key history dates, archiving information and passwords, and so forth. These results are consistent with other findings and serve to show that Canadians – young Canadians in particular – are not different or outliers in this regard. They have eagerly embraced the digital revolution that has swept the Western world.

Second, the younger generation is most likely to believe that they “do not need to remember as much as they used to,” thanks to technology (74% for 18-24; 82% for 25-34). Again, these findings completely make sense when thinking that today’s users have access, from the tips of their fingers, to an exponentially growing number of sources and sites of information that provide instant access to information for memory and life purposes. As Stanford University’s Sam Wineburg aptly puts in his latest book: *Why learn history when it is already on your phone?*<sup>2</sup> The obvious correlation here is the high dependence of this group on technology for googling and archiving information and their strong feeling of helplessness without technological devices at their disposal. Technology is clearly part of their 21st century survival toolkit!

Third, this sense of technological dependence among this group also affects how they value technology as being “smarter than people” (78% for 18-24; 84% for 25-34), and also use social media more frequently to find information on Facebook (55% for 18-24; 67% for 25-34), Twitter (26% for 18-24; 22% for 25-34), and LinkedIn (13% for 18-24; 18% for 25-34). Interestingly, this group also relies

more extensively on Facebook than Wikipedia (38% for 18-24; 40% for 25-34) to find information online. This finding is significant. It confirms that young Canadians are far more likely to read about the world from social media platforms than from the most popular web-based free encyclopedia. Unlike traditional websites, social media provide people with instant user-generated content within communities of subscribers. Social media also allow users to curate other content to share among their networks. This new approach to information gathering and sharing requires serious attention and has led to what is now known as the “filter bubble effect” – the situation in which an algorithm selectively guesses what information a user would like to see based on information about the user and his/her network.

Interestingly, survey results suggest that frequent Wikipedia users are more likely to read about Canadian history (39%), which I suspect is related to another variable: literacy. Indeed, Canadian history is still highly studied, published and consumed through traditional print sources (books, articles, magazines) and standard modes of representations, such as essays and other evidence-based narrative, that tend to uphold encyclopedic sources of information, whether they are print or online. Social media, on the contrary, deliver sound bite information in instant, dynamic tweets and posts that require additional digital literacy skills still largely ignored in history circles.

## WHAT WE NEED TO KNOW

If the ACS results offer new evidence on the links

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2 Sam Wineburg (2018), *Why Learn History (When It's Already on Your Phone)*, Chicago, University of Chicago Press.

between history, technology, and Canadians, they are largely silent on *what* Canadians, young and adult, consume on the Internet or through their mobile devices. We know that social media are replacing traditional sources of information, particularly print sources, but *what* users consume and how they read and evaluate these sources is still unclear. SHEG, the Stanford History Education Group, has done extensive research on how young Americans make sense of online information. Their results are alarming: barely 10% of school participants could correctly evaluate websites (including “fake news”) and discover the real organization behind these sites, and over 70% believed that sponsored content from oil-companies was more reliable than newspapers because, as one participant put it, “it’s easier to understand with the graph and seems more reliable because the chart shows facts right in front of you.”<sup>3</sup> “For every important social and political issue,” SHEG director Joel Breakstone and his colleagues write, “there are countless groups seeking to gain influence, often obscuring their true backers. If students are unable to identify who is behind the information they encounter, they are easy marks for those who seek to deceive them.”<sup>4</sup>

Equally problematic, many schools and teachers continue to teach history and literacy as if the Internet did not exist or as if it worked just like traditional print media. Various small-scale studies have shown how online visuals and hypertextual

sources of information cannot be read vertically like a traditional print source with author, references and footnotes. In the same way, learners need to be more discerning consumers of search engine results. Many trust that Google puts the most reliable sources at the top of its search results – what we have elsewhere called the “Google reflex.”<sup>5</sup> Unfortunately, we lack comprehensive data on Canadian classrooms and history teachers in particular. We have limited knowledge of how well elementary and high school history classes are preparing students for the 21st century information world.

Organizations such as MediaSmarts have been created to help Canadians and educators develop “digital literacy” – a set of skills needed to use, understand and create information in the digital world. What these organizations have uncovered is the impact of technology on our practical lives. The digital age presents us with unprecedented problems when it comes to searching for information about the past and the present and making sure that such information is trustworthy. Where our first problem used to be getting information, what is more difficult today is filtering out what we need from what we don’t. The health of Canadian democracy depends on citizens’ access to reliable information to make informed decisions, and increasingly the Internet is where people go to look for it.

Equally unclear from the survey is the link between

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3 Joel Breakstone, Sarah McGrew, Mark Smith, Teresa Ortega, and Sam Wineburg (2018), “Why we need a new approach to teaching digital literacy,” *Phi Delta Kappan* 99 (6), 27-32; Sarah McGrew, Teresa Ortega, Joel Breakstone, Sam Wineburg (Fall 2017), “The Challenge That’s Bigger Than Fake News,” *American Educator*. Retrieved from: [www.aft.org/ae/fall2017/mcgrew\\_ortega\\_breakstone\\_wineburg](http://www.aft.org/ae/fall2017/mcgrew_ortega_breakstone_wineburg) [Online Resource].

4 Joel Breakstone, Sarah McGrew, Mark Smith, Teresa Ortega, and Sam Wineburg (2018), “Why we need a new approach to teaching digital literacy,” *Phi Delta Kappan* 99 (6), 32.

5 Stéphane Lévesque, Nicholas Ng-A-Fook, and Julie Corrigan, “What Does the Eye See? Reading Online Primary Source Photographs in History,” *Contemporary Issues in Technology and Teacher Education* 14 (2), 101-140.

historical thinking and the Internet uses of history. Knowing that Wikipedia users are more likely to read history books or that the frequency of Wikipedia use does not significantly impact users' self-assessed knowledge of Canadian history is useful. But these results fail to account for Canadians' uses of history in the digital world.

Many institutions have eagerly embraced the digital revolution with its online archives, Facebook history groups, and augmented-reality apps for historical sites of memory. But these do not, in and of themselves, make informed citizens in the 21st century. Technology, as Kentaro Toyama of the University of Michigan School of Information puts it, "doesn't add a fixed benefit. Instead, it amplifies underlying human forces."<sup>6</sup> Amplification helps explain all sorts of human-technology interactions. It helps to explain why, for instance, widespread technology in university has led to innovative flipped classrooms and maker spaces for students, but also favoured the pervasive use of dreadful PowerPoint lectures by professors.

Applied to history education, amplification helps us understand what it might be possible to do with young Canadians. Organizations and people who are making a positive difference in the field are those who have been able to leverage technology as a tool to critically engage their students to use the Internet in intelligent ways (instead of ignoring it) through historical thinking — the disciplinary abilities to think critically about the past for present-day purposes. Adapted to the digital domain, I think

that historical thinking can help develop useful habits of mind: grasping the significance of the past in shaping the present and the future; reading critically to discern between evidence and mere opinions; interrogating texts, posts and tweets, and corroborating sources; recognizing that all narratives about the world are constructed and open to criticism; negotiating a complex and uncertain world made up of multiple perspectives — some more warranted than others.

In these circumstances, I think a new set of questions could be asked in a follow-up survey with distinctive groups of Canadians, some of which are already part of large-scale post-secondary education technology assessment (ECAR studies).<sup>7</sup> These include:

- What tools/technologies do young and adult Canadians use to access information about the past?
- How often do young and adult Canadians access information about the past online/Internet? (daily, weekly, etc.)
- What strategies do young and adult Canadians use to evaluate the reliability or trustworthiness of an online source of information? (what makes people believe a source is trustworthy?)
- What is the trustworthiness of the following sources of historical information? (Wikipedia, museum exhibits, newspapers, Facebook, Twitter, Instagram, *Canadian Encyclopedia*,

6 Kentaro Toyama (June 2015), "Why Technology Alone Won't Fix Schools," *The Atlantic*. Retrieved from: [www.theatlantic.com/education/archive/2015/06/why-technology-alone-wont-fix-schools/394727](http://www.theatlantic.com/education/archive/2015/06/why-technology-alone-wont-fix-schools/394727) [Online Resource].

7 See EDUCAUSE Center for Analysis and Research. Retrieved from: [www.educause.edu/ecar](http://www.educause.edu/ecar) [Online Resource].

genealogy websites, etc.)

- What role should technology play in school? (completely online, blended, face-to face?)
- What are the benefits/drawbacks of using technology in history education?
- What role could history play in developing digital literacy skills?
- Would people's interest in Canadian history be different if the subject was taught with technology?

## CONCLUSION

These questions (and many others) could provide us with an additional window into young and adult people's engagement with history in the 21st century. In their national survey *Canadians and their Pasts*, Margaret Conrad, Jocelyn Létourneau and their colleagues came to the conclusion that "history plays a significant role for many people in providing meaning in this fast-changing world."<sup>8</sup> History shapes their historical consciousness; it acts like a moral compass for orienting their actions and situating themselves in time. What is currently missing is more comprehensive research on the growing and inevitable educational links between technology and history. Democracy, citizenship and the future of Canada demand no less.

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8 Margaret Conrad et al. (2013), *Canadians and Their Pasts*, Toronto, University of Toronto Press, 160.

# SHARING OUR HISTORY IN THE DIGITAL ERA: TREMENDOUS TRIUMPHS AND CLEAR CAVEATS

ANTHONY WILSON-SMITH

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Anthony Wilson-Smith is President and CEO of Historica Canada, the high-profile Toronto-based organization that builds public awareness of Canadian history and citizenship. Historica Canada produces and promotes the popular *Heritage Minutes* series as well as *The Canadian Encyclopedia*. It also runs the Ottawa-based Encounters With Canada youth program. Mr. Wilson-Smith joined the organization in 2012 after a long career in journalism followed by senior executive positions at a Crown Corporation and one of Canada's largest financial institutions. As a journalist, he served as author, columnist, foreign correspondent, editor of a national news publication and frequent public speaker. He remains a well-known political and social commentator.

In the 1980s, the great philanthropist Charles Bronfman became concerned that young Canadians lacked sufficient knowledge and appreciation of their country. As he wrote in an email several years ago: "No society can be of merit unless it has heroines, heroes and myths. In Canada, while there were many, they had not been taught." So, in 1991, Charles financed and helped create one of the first products of a meeting of technology and history — the *Heritage Minutes*. In the 27 years since then, the 60-second vignettes, with their stories of people and events that have shaped our country's development, have created catchphrases ("I smell burnt toast" from the Dr. Wilder Penfield story), spawned many parodies — and educated millions of Canadians about events, both good and bad, with which they had not previously been familiar.

If ever there was a program designed for the modern Internet era — where audience attention is fleeting and viewing options are unlimited — it is the *Minutes*. There has never been a better tool for disseminating information than the Internet. That quality means that we sometimes overlook the potential dangers that arise when we presume too much on its virtues, and universality.

Let's consider both strengths and weaknesses, starting with the former. First, it's essential to be wary of misplaced nostalgia. That means challenging the assumption of some that Canadians were more aware and engaged with history when there were fewer sources of information prior to the Internet's advent. Case studies to the contrary include two programs run by Historica Canada. First, the *Minutes*: when they were launched in the



early 1990s, they were generally available only on television (at unscheduled times.) Today, they still show on television (more than 116,000 times altogether in 2016), but most of their audience is now online. Last year, they were seen more than *seven million* times online. Our most recent Minute, on Ontario/B.C. gay activist Jim Egan's fight for same-sex benefits, was viewed more than 2.5 million times in the first 30 days of release. Unlike on television, the *Minutes* can now be seen instantly at any time with the click of a mouse - and the person watching them is doing so by conscious choice. They're also available on social media with closed captioning - as opposed to earlier days.

The second example is, in fact, even bigger than the *Minutes* in overall use. When *The Canadian Encyclopedia* was created by publisher Mel Hurtig and editor James Marsh in the mid-1980s, it was a print sensation. It sold more than 300,000 copies, and received enormous media acclaim. Today, in online form, it draws a much quieter reception - but is far bigger in terms of regular use. In the last year, it was visited by over 12 million unique users, many of them students - and this year will reach more than 14 million. Unlike a print publication, which can contain outdated material literally the moment it is released, the online Encyclopedia is updated daily by our team of seven fulltime editors and hundreds of freelancers across Canada. And - a major distinction here - when the first print version of the Encyclopedia was published in 1985, it cost \$125. That was a justifiable price given its size and scale, but it was also unaffordable for many people. Today, the online Encyclopedia is free to all, in both official languages.

Despite all the recent debate over "fake news",

most people will surely concede that the Internet, used carefully with an eye to reputable sources, is a hugely positive source in democratizing the dissemination of information. At the recent conference on Technology, Memory and History co-sponsored by the Association for Canadian Studies and Historica, Guy Berthiaume, the National Librarian and Archivist, reminded us that only a few decades ago, access to the archives was restricted to a very select group of qualified Canadians. Today, most of its material is available to anyone at a computer. That is just one reflection of the way in which, for the first time in history, vast troves of information are open to anyone with Internet access.

And yet... the last part of the last sentence is key, because large swaths of our country are still deprived of its full use. Access to the Internet - meaning, specifically, minimal standards of at least 50 megabits per second download and 10MBps upload - remains limited in Canada. Rural and remote communities - where need is arguably the greatest because of their isolation - suffer the most. Despite statements of support from successive federal and provincial governments, there is still no clear federal strategy to establish timelines for bringing broadband access to those communities (including many Indigenous communities). One likely reason is price: according to a report by the federal auditor general released in November, the cost of meeting those minimal standards on a countrywide basis would likely start at \$6.5 billion.

That's not an easy amount of money for any government to absorb. But according to the 2011 census, almost one in five (18.9%) Canadians live in rural areas. In an era in which access to instant, accurate information is increasingly a pre-condition

to making almost any sort of important decision, those people are at an immediate and significant disadvantage. That includes the 17% of residents of rural and remote communities who are between the ages of 15 and 29. One immediate consequence: if they want to learn more about the world in which they live, the easiest option is to head to a big city – as many do. As that happens in increasing numbers, rural communities, in which about 80% of Canadians lived at the time of Confederation, die off. An important part of our heritage disappears.

The absence of Internet access is also a problem that extends beyond rural and remote communities. The number of schools offering regular access to the Internet for teaching purposes remains surprisingly low. In 2017, our organization sent out an online survey to a database-generated sample of permanent, long-term and substitute teachers across Canada. More than 1,000 teachers responded. Among the findings, 23% said their students use computers during class time every day; 34% said they did so “a few times a week”; 13% answered “occasionally”; nine per cent said “only in specialized classes and courses”; and four per cent said “never”. The reasons for limited use include cost of both hardware and Internet usage, and concerns over monitoring the forms of usage by students.

What’s the solution for an organization such as ours, where we try our hardest to live up to our commitment to bring awareness of history – for free – to all Canadians, and, especially, students? For one, our survey showed that 53% of teacher respondents use downloadable lesson plans and learning tools – so we now put a greater focus on producing those. As for students and others with very limited Internet service, the answer lies in going back in time

in terms of the tools we offer. While we redesigned the Encyclopedia earlier this year to make it easier to use on small-screen mobile phones, it can still be used (in stripped-down form) on dial-up Internet. In addition to posting our *Minutes* online for free, the collection is available via DVD. Our downloadable educational material, such as our Indigenous History timeline and content tied to Black History Month, is available in print as well as online.

And so on. The challenge is that producing hard copy material in print, or on DVD, costs per capita many times the expense of our Internet-based offerings in order to reach a much smaller group of people. As a non-profit organization, that’s an added expense that we would be delighted to be able to eliminate – but only when Internet access is genuinely available to all.

Finally, as we often say within our organization, a historical event only happens once, but it can be re-told and interpreted in infinite ways. As attention spans shorten and cynicism over what is “fact” increases, the definition of “history” is increasingly a moving target. In many ways, that’s healthy. Nations, like people, improve when they are self-confident enough to acknowledge failings as well as strengths. Canada, as blessed as we are in so many ways, has its share of dark moments, as well. The vast array of material on the Internet reflects this dichotomy and magnifies the volume of every debate. That is both its greatest strength – and weakness. As our dependence on technology grows, the same becomes true of us.

# NET DEPENDENCE: TECHNOLOGY, MEMORY AND KNOWLEDGE ABOUT HISTORY

JACK JEDWAB

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Jack Jedwab is the President and CEO of the Association for Canadian Studies and the Canadian Institute for Identities and Migration. Holding a PhD in Canadian History from Concordia University, he taught at Université du Québec à Montréal and McGill University. He taught courses on the history of immigration in Quebec, on ethnic minorities in Quebec, on official language minorities in Canada and on sport in Canada. He has also written essays for books, journals and newspapers across the country, in addition to being the author of various publications and government reports on issues of immigration, multiculturalism, human rights and official languages. He is a frequent media commentator on politics, public policy, history and culture.

There is an important connection between acquiring knowledge, memory and learning. Learning involves the accumulating of new knowledge and/or skills while memory is the means by which information is encoded, consolidated and retrieved. In effect, we store some information in our brain for longer-term retention without which it is likely such information is not learned. Hence, the close ties between remembering something and learning about it.

Technologies have altered the way in which we acquire knowledge by increasingly enabling us to offload information that might be otherwise stored

in our brain (whether it's names, phone numbers, appointments, birthdays, geographic locations and/or key events). Things that many of us once recalled are now easily accessed via the Internet on our computers, tablets and smart phones. Researchers Evan F. Risko and Sam Gilbert introduced the term "cognitive offloading" to describe "...the use of physical action to alter the information processing requirements of a task in order to reduce cognitive demand." According to Risko and Gilbert, if you used a smartphone to remind you of an upcoming appointment, you have engaged in cognitive offloading.

Offloading information is by no means new. For some time, we've used calculators to do our finances and used calendars to keep track of key dates. Before the advent of the Internet, the encyclopedia was perhaps the closest approximation for efficiently accessing collective knowledge. But it offered little portability. The big difference with the Internet is the massive amount of information available and the types of offloading it permits. It offers simple access to an endless and ever-changing storehouse of collective knowledge and the capacity to locate and learn seemingly any fact one desires.

Though it may seem as if constant access to a limitless knowledge should improve cognition, much has been written about how the rapidly changing landscape of technology affects what and how we remember people, places and events. And while some researchers believe that offloading hurts our memory, others believe the technological advances enable us to substitute the information previously stored with other things we may regard as relevant. As a consequence, the technologies that we have at our disposal permit the reprioritizing of information we store in the brain without necessarily affecting some "cognitive limit".

Does the ability to offload information about people, places and events have an impact on learning about the past and other related subjects? The interpretation of the past is closely linked to the ability to remember people, places and events, and therefore the ability to offload such information lessens the need to retain it. The impact of technological advances on memory is an area of inquiry that remains insufficiently examined and thus merits far greater attention than it has received to this point. It may also be a key question for history educators, who face diverse

challenges in their ongoing effort to impart knowledge to students. As a contribution to the growing conversation over how technologies affect the relationship between memory, knowledge and learning, in August 2018, the Association for Canadian Studies commissioned the firm Leger Marketing to conduct a detailed survey of Canadian opinion on several key questions arising from this issue. Leger Marketing consulted 1,503 Canadians across the country during the week of Aug. 27, 2018, with a probabilistic margin of error of 3.5 percentage points 19 times out of 20. The sample included some 403 Quebecers, with 86 surveyed in English and 317 in French.

In their study of smart phone use, Wilmer et al. note that as "portable media devices have become increasingly pervasive in our daily lives they have become increasingly capable of supplementing or supplanting various mental functions... (and) seem capable of performing an almost limitless range of cognitive activities for us, and of satisfying many of our affective urges." They add that much of the literature in this area consists of quasi-experimental and correlational studies, from which there is no causality (in other words, we can't be certain about the impact of technological dependence). The few experimental studies that have been performed in this area typically investigate temporary rather than longer-term impact of extensive use of technology.

Our objective is not to look at the impact on cognition of varying uses of technology. Therefore, the national opinion survey is by no means a substitute for a clinical test of how technology affects memory and learning. Rather, it is an inquiry into how people perceive this relationship. As such, Canadians are being surveyed about their overall

reliance on technologies, their own dependence on technologies to retrieve information, whether they think the technologies are “smarter” than people and whether they see artificial intelligence (AI) as a source of positive change for society.

## MEMORY

Research by Benjamin Storm et al. revealed that using a certain method for fact finding has a marked influence on the probability of future repeat behaviour. Thus, the more people use the Internet to support and extend their memory, the more they become reliant on it for securing information. Risko and Gilbert found that people will use technology when they believe it is superior to their own capabil-

ities. The ACS-Leger survey found that some three in four Canadians agree (31% strongly agree and 43% somewhat agree) that “technology is becoming increasingly smarter than people.” Nearly nine in 10 Canadians agree (42% strongly agree and 46% somewhat agree) that “people rely too much on technology as opposed to their own knowledge.” There is a clear correlation in the extent to which people think that technology is smarter than people and agreement over whether there is too much reliance on technology as opposed to our own knowledge. As observed below, nearly two in three Canadians who strongly agree that technology is smarter than people are more likely to strongly agree that we’re overly reliant on it.

**TABLE 1: LEVEL OF AGREEMENT AS TO WHETHER “TECHNOLOGY IS BECOMING INCREASINGLY SMARTER THAN PEOPLE” AND EXTENT TO WHICH CANADIANS STRONGLY AGREE THAT “PEOPLE RELY TOO MUCH ON TECHNOLOGY AS OPPOSED TO THEIR OWN KNOWLEDGE”**

	Strongly agree	Somewhat agree	Somewhat disagree	Strongly disagree
Strongly agree: People rely too much on technology as opposed to their own knowledge	64.3%	34.6%	25.4%	33.3%

As noted, some observers are persuaded that frequent offloading of information to the Internet will end up eroding memory. To reiterate, the findings we offer are not a causal test of that relationship, but do reveal the degree to which people believe this is the case. In what might be described as a memory self-assessment, the survey shows that most Canadians agree that their memory is not as good as it used to be. That is especially the case amongst the

older generation, with some seven in 10 persons over the age of 65 in agreement. As observed in the table below, some seven in 10 Canadian respondents agreed with the assertion that “with the Internet and technology, they don’t need to remember as much as they used to.” But there is a considerable gap amongst those under the age of 35 in the memory self-assessment and the perceived effect of the Internet on memory.

**TABLE 2: AGREEMENT THAT “MY MEMORY IS NOT AS GOOD AS IT USED TO BE” BY AGE COHORT**

	Total	18-24	25-34	35-44	45-54	55-64	65 +
My memory is not as good as it used to be	62%	47%	54%	63%	62%	67%	70%
Thanks to the Internet and technology, I don't need to remember as much as I used to	69%	74%	82%	72%	66%	63%	63%

Below, we look at the relationship between the two and observe that those most strongly in agreement with the idea that thanks to the Internet and technology they need not remember as much as they used to, is the group most likely to give

weaker self-assessments of their memory. On the other hand, those most likely to disagree with the impact of technology on their memory are also least inclined to agree that their memory is not as good as it used to be.

**TABLE 3: PERCEIVED IMPACT ON THE INTERNET AND TECHNOLOGY TO REMEMBER AS MUCH AS I USED TO AND SELF-ASSESSMENT OF MEMORY**

	Thanks to the Internet and technology, I don't need to remember as much as I used to:			
My memory is not as good as it used to be:	Strongly agree	Somewhat agree	Somewhat disagree	Strongly disagree
Strongly agree	35.2%	16.7%	10.6%	9.4%
Somewhat agree	35.2%	51.2%	39.1%	34.4%
Somewhat disagree	15.7%	23.0%	33.2%	22.7%
Strongly disagree	12.6%	7.2%	16.1%	29.7%
I don't know	1.1%	1.8%	0.9%	3.9%

**TECHNOLOGY DEPENDENCE**

Nearly half of Canadians surveyed agree that they

feel helpless when they don't have access to the Internet. Such dependence diminishes most for those persons over the age of 65. Some 45% of Can-

adians say they feel helpless when their mobile phone has no battery power. Those under the age of 25 are somewhat more likely to feel helpless without their cell phone than without access to the

Internet (bearing in mind the connection between the two) whereas those over the age of 35 are more helpless when they do not have access to the Internet.

**TABLE 4: AGREEMENT THAT I FEEL HELPLESS WHEN I DO NOT HAVE ACCESS TO THE INTERNET... AND... WHEN MY MOBILE PHONE HAS NO BATTERY BY AGE COHORT**

Strongly and somewhat agree that I feel helpless...	Total	18-24	25-34	35-44	45-54	55-64	65 +
... when I do not have access to the Internet	50%	58%	61%	50%	54%	45%	38%
... when my mobile phone has no battery	45%	60%	64%	48%	48%	33%	28%

Above, we briefly examined the perception of helplessness amongst Canadians in the event of being cut off from the Internet and/or having a dysfunctional cell phone. Below, we look at various areas (appointments, birthdays, geography, passwords and key dates in history) where Canadians feel dependent on technologies or the Internet to act as their memory. In each of the areas identified in

the table below, the majority of Canadians describe themselves as very or somewhat dependent. Not surprisingly, the survey reveals that technology dependence diminishes most after 65 years of age, though there are important gaps after 45 years of age as regards the recollection of key dates in history and getting around the city.

**TABLE 5: HOW DEPENDENT ARE YOU ON TECHNOLOGY OR THE INTERNET TO REMEMBER THE FOLLOWING? (VERY AND SOMEWHAT DEPENDENT COMBINED PERCENTAGE)**

	Total	18-24	25-34	35-44	45-54	55-64	65 +
Appointment times/dates	54%	65%	64%	60%	54%	54%	34%
Birthdays of close friends and/or family members	51%	61%	65%	56%	45%	51%	36%
Getting around the city	53%	72%	66%	62%	53%	48%	33%
Online passwords/logins	56%	63%	65%	56%	54%	51%	50%
Key dates in history	57%	73%	73%	63%	53%	48%	43%

On being dependent on technologies and the Internet to remember key dates in history, those Canadians who are most dependent are the ones who feel they don't need to remember as much as they used to.

Similarly, those Canadians most inclined to agree that technology is becoming smarter than people are most dependent on technologies and the Internet for remembering key dates in history.

**TABLE 6: VERY OR SOMEWHAT DEPENDENT ON TECHNOLOGIES AND THE INTERNET FOR REMEMBERING KEY DATES IN HISTORY AND PERCEIVED IMPACT OF TECHNOLOGY ON REMEMBERING AND AROUND PERCEPTION THAT TECHNOLOGY IS SMARTER THAN PEOPLE**

	Very or somewhat dependent on technologies and the Internet for remembering key dates in history			
	Strongly agree	Somewhat agree	Somewhat disagree	Strongly disagree
Thanks to the Internet and technology I don't need to remember as much as I used to	74.4%	49.9%	45.2%	41.1%
Technology is becoming increasingly smarter than people	63.7%	60.4%	44.9%	43%

**OFFLOADING INTELLIGENCE**

In a recent consultation conducted by Pew Research, a number of experts predicted that artificial intelligence would augment human capacities, while others believe that “people’s deepening dependence on machine-driven networks will erode their abilities to think for themselves, take

action independent of automated systems and interact effectively with other.”

As observed below there is a rather substantial difference in the degree to which Canadians under the age of 35 and those over 35 use voice-assisted technologies.

**TABLE 7: USE VOICE ASSISTED TECHNOLOGY (E.G., SIRI, ALEXA) TO FIND INFORMATION ABOUT PEOPLE OR EVENT**

	Total	18-24	25-34	35-44	45-54	55-64	65 +
TOTAL YES	23%	41%	37%	23%	20%	23%	6%
TOTAL NO	76%	58%	63%	76%	79%	76%	92%
I prefer not to answer	1%	1%	0%	1%	1%	1%	2%



The ACS-Leger survey does not directly address whether dependence on technologies is viewed negatively. However, the survey does include a question on the perceived impact of AI on society. At 43%, most Canadians agree that artificial intelligence (e.g. Siri and Alexa) is a source of hope and positive change for society, versus some 28% who see AI as a source of fear or a threat to society.

Another 29% said they didn't know (many of them were likely unfamiliar with AI). There is yet another considerable gap on the basis of age in the extent to which people feel AI is a source of positive change for society. The table below also reveals that older Canadians are far more likely to say they don't know when asked about the societal benefits of AI.

**TABLE 8: ARTIFICIAL INTELLIGENCE AS A SOURCE OF POSITIVE CHANGE OR FEARS OR THREATS TO SOCIETY BY AGE COHORT**

Which of the following statements is closest to your opinion:	Total	18-24	25-34	35-44	45-54	55-64	65 +
Technologies, such as artificial intelligence and personal assistants (such as Siri and Alexa) are a source of hope and positive change for society	43%	53%	59%	41%	39%	42%	32%
Technologies, such as artificial intelligence and PDAs (such as Siri and Alexa) are a source of fears or threats to society	28%	28%	27%	36%	30%	26%	23%
I don't know	29%	19%	13%	23%	31%	32%	45%

The ACS-Leger survey further reveals that those Canadians in agreement with the idea that people rely on technology over personal knowledge are more divided over the societal merits of AI. As seen in the Table below, it is those feeling that people are less reliant on AI who seem more enthusiastic about

its potential for positive societal change. In effect, more than seven in 10 Canadians who strongly disagree with the idea that people rely too much on technology believe that AI has a positive impact on society.

**TABLE 9: RESPONSE TO “PEOPLE RELY TOO MUCH ON TECHNOLOGY AS OPPOSED TO THEIR OWN KNOWLEDGE” AND “... ARTIFICIAL INTELLIGENCE AS A SOURCE OF POSITIVE CHANGE OR FEARS OR THREATS TO SOCIETY...”**

	People rely too much on technology as opposed to their own knowledge			
	Strongly agree	Somewhat agree	Somewhat disagree	Strongly disagree
Technologies, such as artificial intelligence (i.e. Siri and Alexa) are a source of hope and positive change for society	35.6%	45.9%	62.0%	71.0%
Technologies, such as artificial intelligence (i.e. Siri and Alexa) are a source of fears or threats to society	37.0%	24.7%	10.9%	16.1%
I don't know	27.5%	29.4%	27.1%	12.9%

It's the most frequent users of AI who are the most positive about its capacity. This may imply that greater familiarity with AI results in more positive views around its benefits. This may also be a function of a digital divide on the basis of age when it comes

to AI; a deeper dive into the survey data reveals that amongst persons aged 55-64 who never use AI are those most likely to believe the negative outweighs the positive in terms of societal change when it comes to AI, or to simply affirm that they don't know.

**TABLE 10: FREQUENCY OF USE OF VOICE ASSISTANTS AND RESPONSES TO “... ARTIFICIAL INTELLIGENCE AS A SOURCE OF POSITIVE CHANGE OR FEARS OR THREATS TO SOCIETY...”**

Use Voice Assisted Technology (e.g., Siri, Alexa) to find information about people or events	Often	Sometimes	Rarely	Never
Technologies, such as artificial intelligence (i.e. Siri and Alexa) are a source of hope and positive change for society	74.3%	72.1%	57.0%	25.9%
Technologies, such as artificial intelligence (i.e. Siri and Alexa) are a source of fears or threats to society	14.9%	15.6%	23.8%	35.9%
I don't know	10.9%	12.3%	19.2%	38.2%

## BACK TO HISTORY

The opinion survey strongly infers a link between dependence on remembering key dates in history and the use of voice assisted technology to find information about people and events. In effect, the technology used to secure information will probably impact the degree of dependence. The table below reveals that some 56% of Canadians who often use Voice Assisted Technology (e.g., Siri,

Alexa) to find information about people or events are very dependent on technologies and the Internet for remembering key dates in history. In the case of those who often access an online encyclopedia (in this case Wikipedia, at one-third), the degree of dependence for remembering key dates in history amongst the most frequent Wikipedia users is considerably less than it is amongst those using Voice Assisted Technologies.

**TABLE 11: FREQUENCY OF USE OF VOICE ASSISTED TECHNOLOGY VERSUS USE OF WIKIPEDIA AND EXTENT TO WHICH CANADIANS ARE VERY DEPENDENT ON TECHNOLOGIES AND THE INTERNET TO REMEMBER KEY DATES IN HISTORY**

	Voice Assisted Technology (e.g., Siri, Alexa) to find information about people or events	Use Wikipedia to find information about people or events
Often	55.9%	33.1%
Sometimes	28.2%	22.5%
Rarely	22.8%	17.8%
Never	17.8%	12.3%

The table below reaffirms that age is not a key consideration in the extent to which voice-assisted technologies are used to remember key dates in history. The most frequent users aged 35-44 are far

more likely to be dependent than those of the same age cohort who tend to use the voice assistants less frequently.

**TABLE 12: USE VOICE ASSISTED TECHNOLOGY (E.G., SIRI, ALEXA) TO FIND INFORMATION ABOUT PEOPLE OR EVENTS AND DEPENDENCE ON TECHNOLOGIES AND THE INTERNET TO REMEMBER KEY DATES IN HISTORY**

Between 35 and 44	Use Voice Assisted Technology (e.g., Siri, Alexa) to find information about people or events			
	Often	Sometimes	Rarely	Never
Key dates in history				
Very dependent	68.8%	34.1%	25.8%	17.9%
Somewhat dependent	12.5%	41.5%	41.9%	36.6%
Not very dependent	6.2%	22.0%	17.7%	30.1%
Not dependent at all	12.5%	2.4%	14.5%	15.4%
TOTAL	100.0%	100.0%	100.0%	100.0%

## CONCLUSION

The survey results analyzed above suggest that the public believes that technologies and the Internet are having an impact on their need and capacity to recall various things that were often the object of memorization. The public perception around the relationship between use of technology and declining memory may be incorrect, as the perception needs to be tested with behavioral evidence. Still, it is clear that dependence on technologies to remember names, places and dates will have an impact on the retention of information. The question that arises, therefore, is whether the offload of such information

impacts its retention and whether, in turn, this affects learning. With increasingly unparalleled information only a click or vocal command away, the need to remember facts and figures seems less vital to our daily routine. In the particular case of learning about the past, further testing will be required to determine what, if any, are the cognitive effects of reliance/dependence on external sources for securing information.

## REFERENCES

Benjamin C. Storm, Sean M. Stone, Aaron S. Benjamin. "Using the Internet to access information inflates future use of the Internet to access other information". *Memory*, 2016; 1 DOI: 10.1080/09658211.2016.1210171

Evan F. Risko and Sam J. Gilbert. "Cognitive Offloading" Department of Psychology, University of Waterloo, Waterloo, Canada and Institute of Cognitive Neuroscience, University College London, London, UK

Evan F. Risko, Sam J. Gilbert. Cognitive Offloading As cited in Trends in Cognitive Sciences, Volume 20, Issue 9, September 2016, Pages 676-688

"Cognitive offloading: How the Internet is increasingly taking over human memory." ScienceDaily, 16 August 2016. Taylor & Francis. [www.sciencedaily.com/releases/2016/08/160816085029.htm](http://www.sciencedaily.com/releases/2016/08/160816085029.htm).

Henry H. Wilmer, Lauren E. Sherman and Jason M. Chein. "Smartphones and Cognition: A Review of Research Exploring the Links between Mobile Technology Habits and Cognitive Functioning" *Front. Psychol.*, 25 April 2017 | <https://doi.org/10.3389/fpsyg.2017.00605>

Janna Anderson, Lee Rainie and Alex Luchsinger, "Artificial Intelligence and the Future of Humans" Pew Research, December 10, 2018

[www.pewinternet.org/2018/12/10/artificial-intelligence-and-the-future-of-humans/](http://www.pewinternet.org/2018/12/10/artificial-intelligence-and-the-future-of-humans/)

## GETTING READY TO STUDY THE AGE OF ABUNDANCE

IAN MILLIGAN

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Technological change is rapidly changing the historical record. Since 1996, organizations like the Internet Archive have been documenting the history of the Web and our digital selves; they have since been joined by most national libraries, universities and other cultural organizations. That embarrassing website you might have written in 1999? That angry tweet in 2011? That series of public Instagram photographs in 2016? All of that is becoming part of the cultural record that historians need to grapple with (for more see Milligan, 2019).

Historians have long had a close association with the documentary record; this relationship is being dramatically transformed in the digital age. While on the balance historians should be optimistic, they will also need new skills and competencies to deal with the problem of digital abundance. We need to understand the impact of web archives on writing about the past, but we also need to rise to the

challenge presented by this new form of historical evidence by embracing interdisciplinary collaboration and encouraging our national memory institutions to digitally archive the lives of Canadians today.

### WHY WE NEED TO CARE: THE 1990S ARE HISTORY

The historical record began to dramatically change in 1996 with the advent of widespread web archiving. In that year, the Internet Archive was co-founded by U.S. computer engineers and pioneering “digital librarians” Brewster Kahle and Bruce Gilliat. They understood that as people were living their lives online, these historical records were at risk of destruction (Kimpton and Ubois, 2006; Webster, 2017). National libraries also began to recognize these new sources and developed various programs to capture the material of their residents for future historical research.

Often when I make this point in public presentations, someone often objects: “The 1990s are not history.” If we use historical parallels to see when events in the “past” began to be considered history, it is clear that this critique does not hold water. Can you imagine Canadian historian C. P. Stacey writing a book about Mackenzie King in 1976, twenty-six years after his death (Stacey, 1976)? Or Douglas Owram writing about Canada’s 1960s in 1997 (Owram, 1997)? This is little different than a scholar today writing about the birth of the Web in the early 1990s, and soon after, the advent of the widespread World Wide Web in the mid-1990s.

This new historical record being preserved since 1996 differs dramatically from the previous one in three key respects: scope, speed and scale.

Scope in that this record includes many people previously not included in the print historical record. For the 2015 federal election, for example, our research team captured almost four million tweets from over 300,000 distinct users (Ruest and Milligan, 2016). In an election from the 1960s or 1970s, we use letters to the editors and other notices as proxies for public sentiment; now we have hundreds of thousands of users to explore firsthand.

Speed in that the record is made accessible quickly, in some cases the same day. Records from decades ago face understandable processing backlogs at archives, whereas if you use the “Save Page Now” function at the Internet Archive to preserve a site it can be saved and served to a user within an hour.

Finally, all of this happens on a massive scale. The Internet Archive has over 43,000 terabytes of content. None of this is a magic bullet giving a perfect view

of the past; who uses the Internet and how they produce content on it is profoundly influenced by race, ethnicity, gender, class, rural/urban status, or beyond (see, for example, Haight et al., 2014) – but traditional historical records are also influenced by these factors.

Most scholars of the 1990s and later will find their studies shaped by web archives: political studies enriched by analyses of webpages, business by corporate webpages and discussions, military studies through discussion posts by soldiers deployed overseas, cultural studies by the everyday production and exploration of culture online. In short, our students will soon want to study the 1990s... are we ready?

### **WE’RE NOT READY TO STUDY IT: THE ACADEMIC STRUCTURE**

There are two main reasons why we are not ready. First, there is not yet the professional apparatus needed to mentor, train, and sustain a new generation of digital scholars. Imagine an eager student who wants to study digital culture in the 1980s or 1990s. Given that some of our undergraduate students today were born in 2001, this isn’t too farfetched – some of the readers here might have studied the 1950s or 1960s in their own studies and were roughly the same distance from the event they tackled. What sort of training might they receive in their undergraduate education? At the undergraduate level, some universities have digital history courses. But these are individual courses, placed here and there in the curriculum, as opposed to larger programs of studies.

The problem becomes especially pronounced at the graduate level. In most humanities disciplines,

graduate education relies on an apprentice model: a student takes classes and writes a major paper or thesis under the supervision of a professor. Professors can often be expansive in the topics they study – an expert in 1950s labour unions might be able to supervise an exploration in 1970s social movements, for example – but they also need to leverage their expertise. Using sources from the 1990s, new students face two obstacles. First, they are working with a newer time period. While this is not in and of itself a barrier, coupled with the second factor – the new form of digital primary sources – the two issues combine to mean that it is very hard to find a graduate program that can support historical research into the 1990s.

What can we do? Canadian Studies offers one way forward. Interdisciplinarity is the only way we can rise to this challenge. A student working in this field may need to draw on a specialist in new media rhetoric from English, an institutional expert from Political Science, and a historian. Canadian Studies departments and centres have long supported research institutes and collaboration. This is exactly what we need to tackle this challenge.

### **THE IMPORTANCE OF WEB ARCHIVING AND LEGAL DEPOSIT IN CANADA**

Even if we had the skills and abilities to use digital sources fruitfully, we also need to worry about the availability of Canadian sources. The preservation of born-digital content is one of the major challenges of our age. To underscore the problem, imagine a book sitting on a shelf. Barring catastrophe, if you come back to that shelf 20 years later, the book and content will still be intact and readable. Now imagine a website. If nobody pays the server fees,

the content disappears unless it has been actively captured by a web archive.

Digital preservation needs active intervention, and crucially, we need to try to get a broad representative scope of the Canadian web in order for historians and other scholars in the future to understand the state of the world today. The crafters of the *Library and Archives Canada Act* (2004) had foresight on this front (Milligan and Smyth, 2018). Library and Archives Canada has power under section 8(2) to take “a representative sample of the documentary material of interest to Canada that is accessible to the public without restriction through the Internet or any similar medium.” Similarly, it defines publication expansively, noting that it “may be in any form, including printed material, on-line items or recordings.”

Library and Archives Canada does fantastic work: the Government of Canada Web Archive (<http://webarchive.bac-lac.gc.ca/?lang=en>) provides access to federal records, as well as thematic collections relating to, for example, the commemoration of the First World War, the Truth and Reconciliation Commission, or the Olympic Games. Yet these thematic web collections are no replacement for large-scale collection of the Canadian web domain more broadly. In countries such as the United Kingdom, France, Denmark and others, national libraries have been empowered through their legal deposit powers to capture this material. Meeting this challenge could be one way to steward cultural resources for the next generation of historians.

### **CONCLUSION**

Web archiving is not a common word, even within the halls of an academic history or Canadian Studies



department. Yet if we are to understand how Canada and Canadians have lived in the period since 1996, these born-digital records will lie at the heart of future studies. Academics need to be ready, and our national memory institutions need to continue their great work to steward, shepherd and preserve this great amount of information.

## REFERENCES

Haight, Michael, Anabel Quan-Haase, and Bradley A. Corbett. "Revisiting the Digital Divide in Canada: The Impact of Demographic Factors on Access to the Internet, Level of Online Activity, and Social Networking Site Usage." *Information, Communication & Society* 17, no. 4 (21 April 2014): 503–19.

Kimpton, Michele, and Jeff Ubois. "Year-by-Year: From an Archive of the Internet to an Archive on the Internet." In *Web Archiving*, 201–12. Berlin: Springer, 2006.

Milligan, Ian. *History in the Age of Abundance? How the Web is Reshaping Historical Research*. Montreal & Kingston: McGill-Queen's University Press, in press for 2019.

Milligan, Ian and Tom J. Smyth, "Studying the Web in the Shadow of Uncle Sam: The Case of the .ca Domain," in *The Historical Web and Digital Humanities: the Case of National Web domains*, eds. Niels Brügger and Ditte Laursen. Routledge, in press for 2018.

Owram, Douglas. *Born at the Right Time: A History of the Baby-Boom Generation*. Toronto: University of Toronto Press, 1997.

Ruest, Nick and Ian Milligan. "An Open-Source Strategy for Documenting Events: The Case Study of the 42nd Canadian Federal Election on Twitter." *Code4Lib Journal*, 32, April 2016.

Stacey, C. P. *A Very Double Life: The Private World of Mackenzie King*. Toronto: Macmillan, 1976.

Webster, Peter. "Users: Technologies, Organisations: Towards a Cultural History of World Web Archiving." In *Web 25: Histories from 25 Years of the World Wide Web*, ed. Niels Brügger, 175–90. New York: Peter Lang Publishing, 2017.

# THE CLASSROOM IS A FOREIGN COUNTRY: THE CHALLENGES AND OPPORTUNITIES OF TEACHING DIGITAL NATIVES

DEBORAH MORRISON

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While we tend to consider technology and its relationship with history in the context of how we use it to learn and communicate about the past to future generations, it is equally true that technology itself has influenced history and the way we remember the past today. There has been less time spent thinking about this latter phenomenon, an area of research that could be very helpful in informing how we might better understand present-day technologies and how they are influencing historical thinking and knowledge among youth today.

Academic and public historians spend a great deal of time talking about the absence of a master narrative in Canadian history. This hasn't always been the case. For the most part, the major narratives that have emerged throughout Canadian history have been technology-driven. From the time of European contact throughout much of the 19th century, settler colonialism was the predominant theme. As new

forms of transportation and communication technologies fuelled the steady recruitment of migrants and resettlement across the country, so too emerged a story of the emergence of an improbable nation, bound together by innovation and ingenuity.

The story shifted in the 20th century as American social and economic influence and dominance began to flow across our borders. With the advent of television, telecommunications and other innovations, the narrative focus became the Americanization of Canada and trying to define what it meant to be Canadian in an increasingly continental context.

As the emergence of the Internet and social media in more recent times opened up possibilities for the creation of new communities of interest, we appear to have entered a new era in Canadian history. Here, multiple platforms and fragmentation of audiences are causing an emphasis on inclusion and adding

in “other histories,” which inevitably has also led to the Decolonization movement and the deconstruction of the Empire, as we have known it. These developments have cultivated a period in which a single master narrative simply does not exist.

Since so many of today’s technologies are still fairly new, it is very difficult to imagine just exactly how they will shape the history of tomorrow. There is much to be discouraged about in terms of the impact of these technologies, particularly among young people, but there are also some truly exciting opportunities for the teaching of history, as well.

First, the bad news. The most pervasive tendency with the advent of Twitter and the 24/7 news cycle is “presentism”, by which I mean that today’s society seems to be easily distracted by what is dominating the headlines and social media feeds of the moment. For many young people, history refers to anything that has dropped out of the screen of their Twitter feed. For others, history is something that has to be “really old” – like something that happened over 100 years ago. As with youth from any previous generation, they typically do not look to history to inform their thinking about contemporary issues, and seem genuinely surprised when historical events are referenced to illuminate modern-day challenges. On the other hand, unlike any previous generation, it could be argued that the realities faced by present-day youth are vastly different and more complex than anything any other previous generation has had to deal with. The pace and scope of societal and technological change has been unprecedented – and continues to accelerate. So who can argue with the assumption that history will not be able to provide significant insights into the realities young people currently face and the

future ahead of them? Is it possible that history has never been more irrelevant?

The second challenge is the sheer volume of unfiltered information available, and the potential for “Fake History.” The democratization of information in this digital era has enabled anyone to become a writer, producer and distributor of content. We all welcome the opportunities this has provided to tell other histories or tell them more fully. We also know that not all of that information is always factual, and without proper training, it makes it difficult for young learners to identify reliable, authoritative research sources. I recently asked a group of young people to tell me about their go-to sources for Canadian history. Like all of us, everything today starts with a Google search. Where that takes them is likely to be determined as much by the level of interactivity and attractiveness of the web links offered as the quality of the content itself. Google dropped its scholar filter years ago from the main website, so even when high school students know to prioritize scholarly references, they are likely to be buried pages deep down on the list of search engine results.

Information and entertainment are inextricably blurred in the digital universe. History content thrives in a wild variety of forms including video games, reality TV shows, Facebook quizzes and YouTube videos. Obviously, when the power of these new media are combined with strong content – as in key Canadian history projects such as the *Historica Canada Minutes*; the CBC series *Canada: A People’s History*; and the collaborative website *Great Unsolved Mysteries in Canadian History* – the impact is significant for both formal and informal teaching in Canadian history. However, this type

of collaboration between popular media producers and content experts is rare.

Lastly, the antisocial nature of social media is a particular challenge. On the one hand, young people have access to more information in an instant than all previous generations did combined. Increasingly, today's youth are filtering and curating that information, sometimes by themselves. At other times, it's done for them based on what else they search and look at online. In a world where it has never been easier to connect to more people or discover alternative viewpoints regardless of geography or background, people's actual social media interactions are getting narrower and narrower, limited to the perceptions, beliefs and values they already possess. And so, while we may be in the middle of an historical era that is preoccupied with deconstructing master narratives and championing greater inclusivity in the telling of our stories, it is not necessarily leading to a broadening of perspectives of any given individual's knowledge of or interest in those histories.

Despite significant challenges to the "future of history" in this technological era, there are a couple of big reasons to be optimistic.

These recent advances in technology enable us to immerse ourselves in the past, enabling and empowering some of the more challenging historical thinking skills such as understanding the dimensions of continuity and change, and empathy for the social values in a given time period. Whether you are able to revisit a time and place through virtual reality, or explore different events and outcomes in a video game, there is no denying that today's tools make it much easier to make the past far less

of a foreign land for today's learners. The human experience has never been linear; however, that is how we have represented it to future generations for the most part. Today's technologies permit young learners to see everything in layers, explore alternative views, and delve deeper into aspects of history that interest them. Being able to approach the past in much the same way as they tackle contemporary life offers the potential for a quantum shift in young people's ability to connect with history, as well as a better chance to appreciate its relevance in resolving present-day challenges and issues.

Secondly, the skills taught as part of a sound history education have never been more relevant. We tend to focus a lot on outcomes related to the teaching of history content, when in fact the historical thinking skills we are developing have much broader application and benefits. The ability to analyze sources and assess bias, for example, are essential to strong media literacy. Being able to consider multiple perspectives when assessing a given situation and to have empathy for those with other experiences will help with resiliency and adaptability in an increasingly complex society and workplace. Indeed, the seven top skills that Google looks for in candidate employees are rooted at least as much in historical thinking than in the science-math STEM skills basics. These include:

- Being a good coach.
- Communicating and listening well.
- Possessing insights into others (social awareness)
- Empathy and support toward colleagues

- Critical thinking
- Problem solving
- Connecting complex ideas

The value and relevance of teaching history has never looked brighter, and yet, how our history is taught remains the biggest risk. Youth today are fundamentally different than any generation that preceded them. Being digital natives, they cannot imagine a world in which you couldn't get an instant answer to any question. Memory means something different. They are more globally connected, and think more deeply about world issues and how they are affected by those issues. Even "meaning" means something different for young people than it used to. Their world is highly interactive, often utilizing multiple technologies as part of a single experience. Engagement, to younger Canadians, means something different, too.

Older generations are inclined to downplay these differences and believe that every younger generation feels they have bigger burdens than the last. There is something fundamentally different about how this generation is developing – socially and intellectually – and yet our school system has not changed its methods for nurturing that development in any significant way in the past 100 years. What we have to teach young Canadians has never been more relevant, but there has to be more effort made to bridge the divide between the world inside the classroom and the world youth live in every day. Academic experts and educators have a lot that they can contribute to the content and production of popular history programming, and media producers would welcome it so long as we don't keep trying

to mould it into a classroom tool. History classes could be a lot less boring if we did a better job of integrating these technologies into the classroom; either by unpacking the productions that exist as part of an assignment; or better yet, empowering youth to create their own using the research and critical thinking skills they are taught.

Returning to the question of a master narrative: it will be difficult for a new one to emerge in this new, fragmented universe without more resources invested in guiding people through the fragments and connecting these worlds together. Young people are already weaving their own narratives. History thrives in a variety of ways in their world – Ancestry.ca, Game of Thrones, Call of Duty, even Back in Time for Dinner are all testaments to this.

It's the classroom that has become a foreign country. Here, everything is different.

# SEARCHING FOR WISDOM IN THE AGE OF DIGITAL DISTRACTION

DR. NANCY SALAY

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Who do you want to be? Epictetus, a Greek Stoic philosopher of the first century C.E., though born into slavery, went on to establish a school of thought that continues to influence people today. He advised this: "First say to yourself what you would be; and then do what you have to do." (Epictetus, *Discourses*, Book III, ch. 23).

He was right to focus on *doing* as the ground for learning — at any given moment in our lives, we are the sum of everything we have ever done, broadly taken. Depending on what we spend our time doing, this can be an advantage or a liability.

If, for the next six weeks, you diligently begin each day with a half-hour meditation, at some point during those six weeks you will notice that your responses have changed: previously what would have absorbed your attention, no longer does; what might have provoked a knee-jerk reaction, you now

thoughtfully resist.

If, for the next six weeks, you spend one hour of each day running, you will find that where before you resisted this high-intensity activity, you now *crave* it.

If, for the next six weeks, you spend one hour of each day reading a book that describes a world of experiences and responses that is completely foreign to you, by the time you are finished, you will notice that your own perspective has expanded.

If, for the next six weeks, you spend six hours of each day answering texts, sending e-mails, surfing the Internet for news, gossip, and ways to spend your money, you will begin to notice that your mind is continually racing and that you have become distracted and irritable.

In short, the way we spend the seconds and the minutes and the hours of our days, determines who we are. This is our ongoing, implicit, education. Most of us know this, even when we don't act in our own best interest.

What many do not realize, however, is that we can also learn from the experiences of others, directly, through perception, and indirectly, by reading and hearing their *words*. Our capacity to learn in this way is rooted in our mirror (empathy) neurons and in the plasticity of our nervous systems, but it is extended and deepened by language. This is a remarkable fact, one that is increasingly lost on newer generations who spend more time engaging with technology than with people and their stories.

The more broadly we educate ourselves, the richer our system of conceptual connections will become: new knowledge introduced into a dense conceptual web is deeply integrated as it cascades along the foundation of associations. The result is someone with broad cognitive reach — an independent, creative, and flexible thinker who makes good judgements in novel situations.

Given a narrow education, on the other hand, the more threadbare our web of understanding will be: new knowledge introduced into a patchy foundation will have little opportunity for integration and, consequently, will be isolated into local silos of influence. The result is someone who may have some areas of expertise, but little ability to apply this knowledge widely, especially in uncharted terrain.

Not so long ago the ideal of education was the Renaissance man — a person knowledgeable in a diversity of areas: art, science and the humanities.

Leonardo da Vinci is a classic example because he was such a voracious learner, but anyone who aspires to a broad understanding of the people and the world in which she lives is embracing this ideal. Its value lies in the result: by learning from the rich tapestry of human lived experience, we gain wisdom.

Renaissance thinking is no longer an ideal in our modern world. Indeed, today we value precisely the opposite: we encourage our youth to specialize, at increasingly young ages, in STEM subjects because these, we think, will ensure their economic futures and will further our collective technological aims.

This shift in public value has resulted in an increasingly specialized educational system. Whereas in the past, elective requirements or a foundation year or two in the humanities, prepared the ground for a cross-fertilization of ideas, today's degree programs leave no room for anything beyond field specific courses. Students begin their post-secondary education at an increasingly young age, having had precious little lived or learned experiences in which to base their education. And they face increasing pressure, from parents, from peers, from society, to "just get the degree," its perceived worth lying more in the resulting certificate — in what financial opportunities this may bring for the bearer — than in the learning and the lasting effect this will have on who the student becomes.

We have the potential today for more information than ever before and this availability certainly makes us smarter, both as individuals and collectively: videos teach us how to write computer programs, start businesses and build bombs. But as we spend our time mining for data, we are missing the opportunity to *learn*, to make deep conceptual connections of

the sort that come from lived experience as well as from the slow immersion in another world that reading a book involves.

Ironically, then, this increase in smartness is accompanied by a decrease in wisdom. We have a wealth of information silos, but no ground in which to sow them.

Contrary to the current buzz in education, then, more technology in the classroom is not necessary for an enriched learning environment. Instead, students need opportunities for human interaction — something our increasingly virtual world is sorely lacking — and ideas and experiences from a multitude of perspectives, both present and past. Ensuring that they receive a balanced education, in the humanities and the arts as well as in the sciences, is a good place to start.

Who do we want to be? Once again, we can learn from Epictetus: "Only the educated are free," he said. (Epictetus, *Discourses*, Book II, ch. 1) Having experienced life as a slave, he knew firsthand what a lack of freedom means: no choices. If we want an enlightened future, *we* must become enlightened. How we educate our children and ourselves — what we *do* with the seconds and the minutes and the hours of our days — will determine the outcome.



# A FUTURE OF HISTORY EDUCATION: HOW HISTORY'S METHODS ARE MORE IMPORTANT THAN ITS FACTS AND NARRATIVES IN A POST-REALITY, ALTERNATIVE-FACTS, FAKE-NEWS SOCIETY<sup>1</sup>

ROBERT CASSIDY

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The Association for Canadian Studies (ACS) has focused its attention in this project on the impact of technologies on the teaching and learning of history. Particularly, it asks: How does the modern technology landscape – ranging from the Internet to mobile devices to search engines to social media, etc. – increasingly “challenge educators as to how best to reach citizens with key information”?<sup>2</sup> To get at this issue, ACS commissioned a survey amongst Canadians inquiring into their relationships with technologies, information, memory and history. In a subsequent forum, a room full of scholars from various disciplines gathered to synthesize the results of the survey and discuss their implications. Even more interesting than the answers given to a survey, however, are the questions asked. The ACS’s survey questions probe at a principal concern: that

technological advances, via effects on our memories, are potentially changing our relationship with history and historical information. In this essay, I’ll briefly examine this concern through the lenses of education curricula to offer some thoughts on how the education sector might wish to respond.

To start, I’ll characterize the concern like this: that in our embrace of this contemporary wave of technological advance, our cognitive capacity of memory will atrophy, and in its departure we will be left with forgetfulness; we will come to rely on and trust the information these technologies present us and cease to rely on and trust our own memory; these technologies do not present raw facts and information, but rather pre-interpreted narratives, answers to others’ prior questions, pre-woven yarns, if you

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1 The opinions expressed in this essay are solely the author’s and do not represent those of Concordia University.

2 Jedwab, J. (2018). Technology, memory and knowledge. Presentation, ACS Historica Symposium, Toronto, November 2018.

will. And in our ability to conjure them, we will thus seem to know things, but it will be an illusion of knowledge; people will conjure vast amounts of information with ease, appear omniscient yet know very little; we'll have the appearance of wisdom without the reality. The fundamental premise of this concern is that these technological trends portend a deep shift in our knowledge of and relationship with history. With respect to education and curriculum, I will offer two potential responses that the education sector may consider.

The first is, nothing. We've been through this type of transformation before. In fact, the concern articulated above is simply an adaptation of Plato's ancient polemic against writing and handwritten books.<sup>3</sup> It is safe to say that we have intellectually survived and adapted to both writing and books rather well (and even to the Steve Jobs-esque contributions of Johannes Gutenberg), and not only are we OK, not only have books not degenerated us into a collection of vapid charlatans<sup>4</sup>, but in fact we are all the better for it. So, a first response is to simply carry on, we'll adjust and be all the better for it.

There is, however, a grave problem with doing nothing. Technologies have indeed disrupted the social, cultural, cognitive and economic roles of information; they have changed the rules of the game. Perhaps related to these disruptions, the role and relevance of education in society are challenged as never before. Given that education has a special relationship to information, it is apparent to educational leaders, economists, policy-makers, and others that something needs to be done to make

education a more viable solution to the problems — present and future — encountered by society at large.

A second response, given these imperatives, is a case for adjustment. Plato got it wrong back then: we weren't left with nothing; we adjusted in ways that liberated us from traditional ways of acquiring and using information. The ACS survey suggests that the advances in technology that people are experiencing today are contributing to noticeable changes in our relationship with historical information. The utility value of information (including historical facts) has changed. I suggest that the value proposition for education must shift in sync for education to be a solution to the degenerative effects of these tech-induced changes.

To frame the type of adjustment called for, it is important to see that the trouble comes not from the abundance and accessibility of information (e.g., historical facts that people no longer need to remember), but rather the democratization of that information base. Up to now, historians — those who professionally engaged in the scholarly community of history — held a privileged position in society and in this information economy. They were the gatekeepers of our historical facts, the curators and creators of our historical narratives, crafted with rigorous methods and held to conventionally accepted standards of verisimilitude. The fruits of this scholarship were tested within the scholarly community and communicated to the public via privileged and publicly sanctioned channels such as academic journals. Today, virtually anyone with Internet access can marshal "alternative facts" and

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3 Ironically written down in a book entitled *Phaedrus*.

4 Stephen King's books aside.

spin patently false narratives that give the appearance of truth (historical or contemporary), by simply bypassing the methods and the discourse that give historians their rigor, reliability, and authority. Furthermore, people who control the Internet can deliberately and strategically serve up falsehoods to unwitting people looking for truthfulness.

New gatekeepers have been established. At the ACS forum, this was the evident discomfort. It is not the unprecedented access to information that is the problem — indeed, few would be uneasy if every Canadian had unbridled access to *The Canadian Encyclopedia* — but rather the democratization of information and the loss of our traditional gatekeepers to historical information and its sanctioned narratives. Indeed, in this time of alternative facts and fake news, information and narratives have become a politicized and corporatized weapon, and historians see right through this. So why doesn't everyone else? I suggest it is a failure of the education system.

Maybe you have a different experience of history curricula, but when I help my daughter study for her 4th-grade History tests, I play the role of a big, supportive flashcard. Right in line with what she will be tested on, we go through it over and over again: What year did Champlain found New France? Who was the first European to have landed in the Americas? Who did Cartier meet on his first expedition? And so on. She is taught to drink it in, to internalize it. Does she really care what European explorer did what and when? Not a smidge. But somebody else does, and so she must subject herself

to it. She's not apathetic about the past, but these are not her interests or the answers to the questions she's interested in. In fact, nowhere is there even a slight invitation to think about this stuff, to question it, to examine whose story it is, what other stories might similarly be told. I cannot fathom that this is learning "history", any more than learning the parts of a cell is learning biology. And this is where, I believe, education has got it wrong, and keeps getting it wrong right up until university.

Given that historical facts are so abundant and so questionable, why are we not teaching kids (and adults) to locate, evaluate and adjudicate facts and stories? To engage in the methods of historians that have given them rigor, reliability and veracity? Education research could not be clearer about the value of memorization relative to higher-order thinking skills. The memory for facts is not, after all, a highly valued skill. The conjuring of facts is more a beginning to more important things than a worthy end in itself.

I'm not really in a position to characterize with any precision what those higher-order thinking skills are in History, only to point to them as more valuable than remembering facts. I look to the many historians, psychologists and educational researchers who have collaborated for decades to characterize what they call "historical thinking" or "historical cognition".<sup>5</sup>

Historical cognition is described differently by different researchers, but to name some of the skills coming from the research literature:

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5 For this list, I draw upon the work of Peter Seixas (UBC), *The Historical Thinking Project* ([historicalthinking.ca](http://historicalthinking.ca)), as well as that of Stéphane Lévesque (UOttawa), Sam Wineburg (Stanford), Bruce VanSledright (UNC Charlotte), Pierre Nora (École des hautes études en sciences sociales), Denis Shemilt (Leeds Trinity University) and others.

- to evaluate and identify persons, events, etc., of historical significance
- to interpret past events in light of various competing ideologies
- to construct, analyze and adjudicate narratives
- to use primary source documents as evidence for the interpretation and creation of narratives
- to attribute causes to past events
- to manage ideological dilemmas created by equally favorable alternative interpretations
- to use empathy as a means to understand people, ideologies, motives, etc.
- to understand the processes of interpretation and how they manifest various ideological agendas, empathies and theoretical lenses
- to critically examine the interactivity between evidence and interpretation
- to synthesize interpretations in light of complementary points of view.

And there is much more. Historians and education researchers continue to collaboratively bring more clarity, more precision and validity to these intellectual functions. Yet, nowhere in this list is “remembering” historical dates or facts. There’s nothing in this list that you can google your way out of. Thinking like an historian doesn’t seem to be at all about remembering factual information.

As these higher-order skills are quite distinctive of history as a discipline, it seems that history has a particular role (responsibility?) to help society (i.e., non-historians) develop them through history education.

So how is history education doing? Well, for many Canadians, it is not until they reach the upper echelon of an undergraduate history degree that they develop these skills. The rest of us get bogged down imbibing historical facts, the narratives and interpretations of others — the products of historical cognition rather than the processes. In their lower forms, history curricula press students to adopt and regurgitate the narratives that are sanctioned by the state (for K-12) or by the professor (higher education). In their higher forms, the curricula challenge students to use historical thinking to analyze and evaluate others’ narratives, and to create their own.

The needed adjustment in history education is a good rethinking of the very meaning of the “foundations” of history education. Universities must continue to push past our legacy curricula, constrained by chronological and geographical delimiters, and even social movements and other major changes of historical significance. We need to start thinking more deeply about the methods and habits of mind that lead to truth (or at least statements of truth that hold water). This calls for a transition away from history as a collection of facts about the past, with its fundamentals being the mastery of particular broad strokes of regions, time periods and movements that serve as the knowledge foundation for drilling down into more specifics. We need to think of history instead as the art and science of not taking accounts of the past at face value. We might re-imagine the fundamentals curriculum as the develop-

ment of the various skills and intellectual habits required to understand, challenge and evaluate these accounts or narratives. I would think history methods courses, labs and history problem sets might be in order, where students practise these rudimentary skills on various raw materials.

If we seek guidance as to how policies and programs need to respond to these technological changes, this would be my suggestion. Spend time to carefully map out what “historical cognition” is for Canadians, then put that in the curriculum as early as possible and develop it from childhood onward. This is certainly not a new call on the education system, but maybe now our technological advances will force us to take it much more seriously.

Technology is disrupting our use of information, and we have a good reason to ask our education systems to adjust, to take appropriate action to teach us how to think our way through it and emerge on the other side a better, more thoughtfully informed society. If historians are no longer the gatekeepers of history, can they train us non-historians to become our own gatekeepers?