Dissecting Digital Divides in Teaching
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Introduction

My paper considers the impact of so-called digital divides in digital approaches to teaching about the Ancient and Medieval worlds. My experience mostly derives from teaching a large (150+ student) introductory-level “Western Civilization” class at the University of North Dakota. UND is a mid-sized, “High Research Activity” university (according to our Carnegie classification) that draws heavily from the Northern Plains. I teach in small history department of 10 students with relatively strong commitment to undergraduate teaching and a small and withering graduate program. This paper explores how various “digital divides” have shaped my own teaching strategies in an introductory-level history course and how working to bridge these divides on a practical level nudged me to think more critically about how digital tools produce students, teachers, and communicate the expectations of the modern world.

The Digital Divide

There’s been a good bit of scholarship on the digital divide in secondary and higher education. The idea of the digital divide, in its most basic form, suggests that a significant divide exists between those who use and have access to digital technologies and those who do not (McConnaughey et al. 1995). This divide is usually mapped along social, economic, and regional lines. Rural states, like North Dakota, tend to fall on one side of the digital divide especially when access to broadband internet is concerned and in terms of how frequently secondary and higher school students use computer for homework (Halvorson 2018). In fact, 153 of the 176 school districts in North Dakota are categorized as either “rural, distant” or “rural, remote” by the National Center of Education Statistics, marking them as among having the lowest access to broadband internet by a substantial margin and districts across the northern tier of Minnesota are similarly defined (NCES 2018). The impact of the digital divide on rural communities in North Dakota is sufficiently acute that the Chancellor of the North Dakota University System recently floated the idea of a “Cyber-Grant” university initiative that would tax tech companies to help support the development of digital infrastructure in states like North Dakota that lag behind (Hagerott 2018).

While not all UND students come from rural areas and most, in fact, don’t come from North Dakota (UND Student Profile 2018-2019), my experience is that they are generally less technologically savvy and comfortable in digital environments than their more affluent and more suburban counterparts elsewhere in the U.S.

While the data suggests that students from rural areas are no less likely to own digital devices than their suburban or urban counterparts (Croft and Moore 2019), I continue to be struck by the
significant number of students for whom technology is not a constant companion. Many of my students do not bring their laptops to class regularly, for example. In a recent field project that involved using mobile phones to take video, a number of students had such outdated phones that they could not accommodate more than short video clips; one student had a flip phone; another student took videos but was never able to send them to our archive. While it was easy enough to negotiate the different access to technology, it also was clear that the digital divide in terms of hardware remains firmly in place. A recently updated smart classroom with a series of small group work stations relies on students to use their own laptops too access the large, shared monitor. This seems like an optimistic implementation of technology.

Access to the right hardware, however, is only part of the digital divide. Over the last decade of teaching, it has become clear to me that something as simple as a broken hyperlink or a pdf document oriented the wrong way, can represent a barrier to accessing information. A significant group of students lack the standard tool kit of web “work around” that range from savvy web searches to negotiating the standard elements of user interfaces across multiple software. Even something as simple as using a mobile device as a quick and dirty scanner or looking for an article on Academia.edu or institutional repositories remains on the fringes of their practice (even when such approaches are modeled in class). Finding ways to access pirated copies of publications or books to accelerate research, whatever the ethical and legal risks of such practice, is simply beyond what we can expect.

In my larger experience across campus at UND, it is pretty apparent that even relatively simply digital interfaces - like editable Wikis or shared documents in Google or Microsoft 365 - caused myriad small-scale obstacles that frustrated students and complicated group work.

Prosumer and Consumers

Access to hardware and familiarity with software (and these often go hand-in-hand) sketches one level of the digital divide; these also contributes to the existence of the what some scholars have called the second-level digital divide (Hargittai 2002).

The second level divide maps the difference between individuals who are consumers of digital material on the web and those who are so-called prosumers of digital and web-based content (Toffler 1980; Tapscott and Williams 2006). Prosumers both consume and produce products, content, and media on the web and so-called ”prosumption“ is the backbone to the participatory web, Web 2.0, and, in some ways, anticipates the semantic web (or Web 3.0) outlined by Tim Berners-Lee (2001) and embraced by so many archaeologists (e.g. Kansa 2014). The lag in access to broadband may well have had a much greater impact on students’ ability to see the digital world as a space of shared media, data, and experiences. While my students do have social media accounts, they tend to be skeptical of blogging, consume YouTube and podcasts more than produce in these media, and are particularly hostile toward Wikipedia.
I contend that this second level divide is far more problematic than the first level divide for implementing digital approaches to teaching and, as a result, I have dedicated more time to cultivating prosumer culture among my students and demonstrating how digital tools facilitate certain kinds of collective knowledge making. My approach to bridging the second-level digital divide, however, is intentionally naive in order to mask a deeper ambivalence about. On the one hand, I continue to have a certain amount of faith that the last unfettered wilds of the internet hold out a glimmer of hope for a society and at times feel inspired by works like Michael Serres refiguring of *Thumbelina* (2015).

On the other hand, I worry that at the current moment, the digital world is contributing to a society that is far more likely to be shackled, monitored, and manipulated by technology than liberated by it. I want my students to understand the power of Wikipedia, for example, and the ecosystem that has produced the growing number of open educational resources and open source software, and the potential, if not unproblematic character, of maker culture (Chachra 2015). Moreover, I want them to be prepared to contribute to it.

At the same time, I do recognize that most aspects of prosumer culture have been coopted by the usual suspects of capitalism (Fuchs 2013), gender (Glott and Ghosh 2010; Losse 2014; Leonard and Bond 2019), race (O’Neil 2009; Montez 2017), and technological solutionism (Morozov 2013). By producing new knowledge, creative works, and tools, we also produce profits for transnational corporations who are as comfortable limiting access to our own work as they are preventing us from subverting their spirit of profit. As the kids say: “the revolution will now be monetized” (Zimmerman 2017)

*Other Digital Divides*

The digital divide and the consumer/prosumer divide are similar to older, more persistent, and equally porous divides that structure how we learn and think. In my discipline of history, students obsess over and are baffled by the distinction between primary and secondary sources. For students of the ancient Mediterranean, this consternation is particularly understandable and useful for unpacking the relative uselessness of this distinction among practicing historians. A source is a source and only primary or secondary in relation to how it is used, or to paraphrase E.H. Carr evidence is only evidence when its evidence for something (Carr 1961).

Practicing archaeologists sometimes find ourselves in the same bind, of course. The divide between data and interpretation, for example, coincides with the primary and secondary source divide among historians. The persistence of terms like “raw data” reveals an understanding of archaeological knowledge making the divides data from interpretation (Gitelman and Jackson 2013). It seems to me that digital data makes this divide all the more convenient in part because the data itself appears so distinct from interpretative texts, and partly because “digging down” into the data (or data mining) represents a useful play on the modernist assumption that excavation (literally or metaphorically) provides access to a view of the past less encumbered by present interpretation. While we may intellectually understand this divide as naive as generations of archaeologists who celebrate
reflexivity and methodology have taught us, we nevertheless tend to lean on the distinction between
data and interpretation to frame our conversations. Endless references to archaeological data
populate academic conferences, publications, and, I suspect, our teaching. For students who
continue to want to see facts as the antidote to fake news, the transparent use of data appears to be a
compelling ontological tonic for their epistemological anxiety.

To my mind, this digital divide is every bit a pernicious as the other digital divides described in this
post. In fact, it might be more dangerous in the era of Big Data than the other digital divides
because it tends to see data as holding a particular kind of fundamental and inescapable authority in
how it describes the world.

\textit{A Critique of Prosumption}

All of this brings me to my Introduction to Western Civilization class at the University of North
Dakota, which I’ve taught for the last five years in a Scale-Up style classroom. The idea behind
Scale-Up classrooms originated at NC State and the term “Scale-UP” was an acronym for “Student-
Centered Activities for Large Enrollment Undergraduate Physics” (Gafney et al. 2008). Today, folks
talk about “Student-Centered Active Learning Environment with Upside-down Pedagogies,” but the
general idea remains that these classrooms are designed to accommodate large classes with flipped
pedagogies.

My Western Civilization class generally enrolled 150-180 students and the room was set up for them
to sit around round, 9-person tables. Each table had three laptops connected to a monitor and also
came with a whiteboard and a microphone for the students to play with when bored. A central
teaching station allowed me to observe most of the groups and to project content from the tables
onto four large projection screens in the corners of the room. The goal of this class was for students
to become better at making sustained arguments about the past and to do this at scale. (Some of the
ideas that I presented here appeared originally in an unpublished paper by Caraher and Stanley 2014)

The design of the room encouraged students to work together and at least in theory sought to
mitigate the hardware aspects of the digital divide by ensuring that at least three students had access
to a laptop. In the most common implementations of this design, a student or students worked as
the scribe for the table on a provided laptop or students worked in smaller groups, three to a laptop,
sometimes installed with software appropriate the assignment or the discipline. While I did not
formally leverage the practical aspects of three-laptop design, it did work to level uneven access to
technology among my students.

The class sought to bridge the "second-level digital divide” by encouraging students to work
critically as prosumers of educational content. In practice, this involved having the students write a
Western Civilization textbook with each table working on a series of chapters over the course of the
semester that we bring together at the end of the class as a completed book. This task encouraged
students to recognize the value of their own voice, critical abilities, and maybe even responsibility to
produce their own historical narratives and analysis. It also subverts some of the economic and political power of textbook publishers; although, I do ask them to buy a used copy of an older version of a textbook as a model.

Finally, the students start with more or less a blank document. I do not provide an approved list of primary or secondary sources or even offer much in the way of a critical guide to navigating the internet. Most students get that journal articles are better than random webpages (of uncertain authorship and content), that Wikipedia is a good place to glean chronology, geography, and additional sources, and that historical arguments are only as good as the sources that they identify to build their arguments. If they cannot find good evidence for an argument, then no amount of rhetorical savvy is likely to make it compelling.

I use this approach as a way to de-emphasize the idea that there is a body of data “out there“ ready for consumption, analysis, and interpretation. Instead, it encourages the students to see the body of useful evidence and data as the product of their research questions and priorities. The ”raw material” of history is not something that is ”mined” for knowledge, but something that is created as evidence for arguments about the past.

In an era where relational data is literally being treated and traded as a commodity, it is hardly surprising that we envision knowledge making as a kind of extractive industry rather than, say, performative or generative (and, here, I’m thinking of a paper that my colleague Sheila Liming gave a few years back on the metaphor of data and text mining (Liming 2016)).

I guess that I should admit that this class is chaotic in every way. The groups struggle mightily with finding sources, producing specific evidence, and making arguments. We produce outlines, write drafts, have peer reviews, and revise, all the while careening closer the goal of a careful argument. I like to imagine that the uneven results, the frustration, and the chaos reproduces the struggle that most of us have in making sense of the digital world and constructing arguments. By trying to break down the divisions that my students imagine between data and argument, evidence and assertion, or even fact and fake news, we accept more readily the messy and complicated state of knowledge in the real world.

Conclusion

This paper does not have some kind of brilliant and inspiring TED talk style conclusion. In fact, I would be remiss if I did not point out that the prosumer culture in the Scale-Up classroom has its own economic, political, and social baggage. My class prepares students to live in a world populated by Uber drivers, to repurpose apartments as Air BnBs, and to celebrate so-called “maker culture” that is far from being radical. In fact, collaborative styles of learning may simply reorder many sexist, classist, and racist features of 20th century industrial capitalism. After all, as Arum and Roksa (2011) pointed out almost a decade ago, collaborative learning models tend to privilege more affluent students from more educated families.
For example, I recognize that some of the control that I visibly cede to the students, is an illusion that parallels many of the illusory aspects of freedom and control central to our digital culture. The digital world has made observation central to how we monetize time in late capitalism (page views, active time, engagement time, et c.; Fuchs 2013). This same approach is baked into most learning management systems which allow us to track student activities when they visit our class site. Moreover, there is a kind of panopticism inherent in the design of the Scale-Up room. While the students face one another, I stand in a position that allows me to observe the dynamic in groups and across that classroom. The role of teacher as observer is central to understanding what some have called “invisible learning” (Cobo and Moravec 2011) or “intermediate processes” central to the acquisition of higher-level thinking skills. Our ability to observe both the analog work of students in groups as well as their digital work (through the backend of our learning management system) contributes to a 21st century version of the kind of surveillance society that Foucault identified as characteristic feature of the modern world.

While it might sound naive to assume that somehow education — a thoroughly modern discipline — could avoid inculcating students with the expectations of the market, I do worry that our own use of digital tools and environments do little to prepare students to resist these pressures. On the other hand, perhaps an encounter with the digital world based around dissection and breaking down these digital divides at least offers a tool kit for students to expect there to be limits to practices and to engagement in the digital world. This, of course, does nothing to undermine an ironic view of the modern world where strategies of dissimulation and occlusion obscure the real function of power and the making of meaning. At the same time, for as long as there has been formal education, students have found ways to resist the expectations of the classroom, our institutions, and our pedagogy. We can hope that this resistance is more than just pushing back against authority or against the discomfort of learning, but an informed resistance to the system itself.

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