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What should the well-trained graduate student know about digital history when they convocate? The “digital turn” has affected all aspects of history including how we research, write, teach, communicate and publish and its impact is only going to grow. Bad enough that the current professoriate flounder when pushed passed the basic digital skills, but worse that we should handicap the next generation. Recognizing that today’s technologies are only going to be the foundation for tomorrow’s, anyone who does not have the fundamentals today will find themselves cut off from a growing, dynamic and increasingly important part of the profession and it will be increasingly difficult to catch up. What then are the digital skills every history graduate student needs to know?

Research

Historians are, among other things, professional information managers. We find, organize and retrieve information and today our first stop is the Internet. At a basic level, we ought to be able to use specialized search indices (like Google Scholar, WorldCat,) know the difference between search engines (ie. Google) and indexes (ie. Yahoo), use meta search engines (that search across all engines – like Dogpile), refine searches with Boolean operators (AND, NOT, OR) and use truncation and wild cards. Critical thinkers should understand how search engines work (what spiders and crawlers are), and how they determine relevance and ranking. These are basic literacy skills in our decade.

Practically, students should graduate with the ability to scan images and documents, understand the concepts behind Optical Character Recognition (OCR), and the appropriate resolutions to scan at, the difference between and different uses of image file types (GIF, JPG, PNG, TIFF etc), audio file types (MP3, WAV, etc...), and Flash and video file types (Quicktime, Windows and Google Video, etc...). Historians should be able to resize and crop images (using free software like Gimp or proprietary software like Adobe Photoshop). We should be able to create tables and charts in Microsoft Excel or its free equivalent, (which works the same way) Open Office’s Calc.

Beyond these generic uses, the computer is also a fundamental part of numerous specific research methodologies. We do not all have to know how to use the soft and hardware to do all of these types of research, but we do need to know if our particular research questions might be effectively addressed by them. Moreover, if we want to engage with colleagues in our fields who do use them, we need to know what they are, and what they can and cannot tell us.

Digital literacy for professional historians accordingly involves an understanding of the main computer-assisted research meth-

ods, the concepts they use, and their strengths and weaknesses. These would include Quantitative methods (including exposure to common software like SPSS), Text Analyses (including concepts behind the Text Encoding Initiative –TEI and Extensible Mark Up Language-XML), Computer Assisted Discourse Analyses (ie. with software like NVivo), Mapping (including awareness of Google Maps, Google Earth, and Geographic Information Systems-GIS), automated machine harvesting of research material via scraping, spidering and data mining, as well as software to assist with oral history (audio and video editing and mark-up) and genealogy. We can master the few that will help our research or team up with others who have the skills.

Communication

As professional historians we have communication needs with colleagues, students, and increasingly with writing or project collaborators. The technology is changing fast but entry level skills for collaborating with colleagues would be VoIP (Voice Over Internet Protocol) programs such as Skype or Oovoo which allow free audio or video conference calls, Blogs on which to keep project logs, reports and requests (Wordpress a common Blog creation tool), and collaborative writing tools (Google Docs, Zoho Writer, Thinkboard, Write Free – all free).

For communication about your research or course requirements a website is a basic tool and there many free software tools to create websites (NVU part of the Firefox suite is one). Options that students are likely familiar with, but should be challenged to think of as professional communication tools include Facebook and other social networking tools. Our students are almost all texting and the ability to send group texts to a class to alert them to a change in schedule, assignment or a last moment cancellation, will be increasingly useful.

Many of the files we want to share are too large to send via email and so basic digital competency now includes the use of file compression software (ie. Winzip) to make files smaller to send, File Transfer Protocol – FTP software (ie. Filezilla) to send and receive large files to/from servers, and various free Internet drop boxes that allow the uploading and downloading of large files.

Teaching

Our MA students often do some teaching assistant work and are often asked to teach via class presentations to their peers. Our PhD students will mostly be looking for jobs as teachers. No one should leave a graduate program without a mastery of the very simple software Powerpoint or its Open Office equivalent, Presentation. Our PhD graduates should have been exposed to class management software like Web CT or its open access counterpart, Moodle, which allow for the integration of class discussions, posting outlines, grades, and sending, marking and

returning assignments. New teachers need to understand what a Wiki is (web pages created collaboratively via Wiki software) and how to create one.

History teachers should have had some exposure to the literature on student-centered learning and how it is facilitated by the Internet, and some exemplary examples of archival or teaching websites that can be employed in their classrooms. Google Earth, the software that allows the observer to zoom in on and fly over any part of the globe is a fantastic resource that should now be part of every teacher's tool kit. Different creators are now at work building historical layers for Google Earth showing earlier landmarks and even buildings.

Dissemination/Presentation/Publishing

The Internet allows historians a much broader audience than print and the new generation of historians ought to be on the cutting edge of using the Internet's dissemination possibilities. Many of these technologies have already come up under other headings. We need to know what the components of an effective website are, how to create one and have it loaded on servers. Students should know how to reserve Domain Names the short and intuitive names for websites, and how to link them to the URLs where the websites actually live. Blogs are another effective and free publication tool suited to specific purposes. Much of the work in digital humanities has involved publishing on line and students should be introduced to the new possibilities of digital scholarly publications as well as some of the intellectual property and other issues they raise. For those of us who create databases, their dissemination requires intuitive interfaces, so discussion of interface design would be useful.

Critical Analyses of the Digital Media

More important than any of the particular skills described above will be the new historians' critical grasp of the implications of digital universe on the access to, understanding of, and creation of history. Since we are in the midst of the change, only some of these are apparent but they are huge. At a rudimentary level, students need to understand what the Internet is, how it works, and who controls different elements of it. The new technology challenges long established patterns, for example, the hypertextual

(or intertextual) possibilities of the digital publications challenges our narrative practices and opens up new possibilities. The practices of reading on a computer screen are demonstrably different from reading print and that requires new types of organization of information and new forms of writing. Collaborative writing, especially through mechanisms like Wikis, challenge the notion of "author" and "peer review". The democratization of publishing suggests a new competition with amateur historians for the historical consciousness of the wider public and, potentially, further marginalization of scholarly history. The Internet offers different models for the presentation of historical narratives and teaching historical skills. The new generation must explore the potential of gaming engines and 3-D modeling and interactive worlds.

We will also likely want to engage our students in the discussion about "Open Access" software and the potential democratization of intellectual resources that it involves. At the same time as the digital horizon is expanding, thanks to a dedicated cadre of programmers and enthusiasts there is a growing open source movement so most of the tools historians need to do our work are available free, including a full suite of tools that replaces Microsoft Office, Open Office at www.openoffice.org, Zotero which replaces Refworks and Endnote, and other software to alter images, write collaboratively or to transcribe interviews

Conclusion

Most history departments in Canada and the United States continue to teach their graduate students the same skill sets the current generation of faculty were taught 10 to 40 years ago, and little more. Only a few offer specialized training in Digital History, as though it were a subfield. Digital History is a not a subfield, but a set of tools, practical and intellectual, which every graduate needs. Those departments that recognize its new importance will provide the historical innovators and leaders for the next generation while the rest, huff and puff as they try and catch up with the digital bus as it picks up speed.

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