Evidence Based Library and Information Practice

Digital Literacy Skills for Family History Research

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Volume 16, Number 2, 2021

URI: https://id.erudit.org/iderudit/1080367ar
DOI: https://doi.org/10.18438/eblip29873

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Publisher(s)

University of Alberta Library

ISSN

1715-720X (digital)

Explore this journal

Cite this article

Wilkinson, J. & Bond, N. (2021). Digital Literacy Skills for Family History Research. *Evidence Based Library and Information Practice*, *16*(2), 89–110. https://doi.org/10.18438/eblip29873

Article abstract

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Methods – Authors conducted pre- and post-course surveys to determine student expectations and the extent to which the course met those expectations. Authors coded one of these surveys.

Results – Course assessment and class activities exposed the need for a set of digital skills that go beyond a literacy framework to assist family history researchers. After analyzing key themes found in pre- and post-course assessment, authors developed a new tool for genealogy instructors titled Introductory Digital Skills and Practices in Genealogy (IDSG).

Conclusion – Archivist/librarian collaborations are an excellent way to cultivate needs-based teaching and outreach opportunities in our wider communities, particularly for adult learners. The Introductory Digital Skills and Practices in Genealogy tool is meant to inspire and assist other library professionals who want to teach family history research, serving as a reminder to centre teaching tangible digital skills as a focal point of instruction.

Evidence Based Library and Information Practice

Research Article

Digital Literacy Skills for Family History Research

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Received: 29 Oct. 2020 **Accepted**: 21 Feb. 2021

DOI: 10.18438/eblip29624

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Introduction

Genealogy, both as a hobby and industry, has seen a renaissance over the past two decades in the United States, most recently boosted by renewed interest in the potential for genealogy and genetic testing to help solve cold crime cases (Greener, 2014; Payne, 2020; Rodriguez, 2014; Sachs, 2019). In this case study, the authors—a librarian and an archivist—report on the implementation of an adult education class focusing on genealogy and digital literacy, and lessons learned through course assessment. They share foundational digital skills needed to conduct effective genealogy work, represented in a new document: Introductory Digital Skills in Genealogy (IDSG; Appendix A). This document has its genesis in students' queries about "the basics" of digital research skills and how they relate to genealogy. IDSG pulls components of digital literacy, archival intelligence models, and domain knowledge into a cluster of foundational digital skills needed for effective genealogical research.

Neither author is a certified genealogist or a member of a genealogy organization. In approaching this course and subsequent paper, the authors derived their tools and perspectives from librarianship and archival praxis, rather than the practice of genealogy itself. The field of genealogy retains its own pedagogical approach and praxis, but a critical analysis of these methods would necessitate a more thorough examination, which lies outside the confines of this paper. According to the National Genealogical Society, "Genealogy is often used to describe a line of descent, traced continuously from an ancestor, often also called a lineage. There is some expectation that a genealogy is a formal or scholarly study of ancestral family lines" (National Genealogical Society, n.d.). This paper thus addresses the pursuit of family research and refrains from turning a critical eye to methodology or praxis. The authors used the terms "genealogy" and "family history" interchangeably throughout their course as well as in this paper; any perceived differences in meaning have been deemed minute enough by the majority of genealogy practitioners as to be rendered moot.

Literature Review

The Popularity of Genealogy

Given the popularity of genealogy and the utility of libraries and archives for free access to related materials, services, and resources, professionals working in these spaces have created resources to help serve the specific needs of users. In 1996, the American Library Association's Reference and Adult Services Division's (RASD's) Board of Directors first published guidelines for instruction in genealogy at library schools that are still maintained today (RASD History Section Genealogy Committee, 1996). Two papers published in 2003 and 2014 studied the information-seeking behaviours of genealogists with the purpose of helping librarians and archivists understand the distinctive needs of

this group of researchers whom they might encounter in reference transactions (Duff & Johnson, 2003; Friday, 2014). More recently, multiple texts have been published to help libraries grow their corpuses of genealogy materials and expertise (Schultz, 2018; Smallwood & Gubnitskaia, 2018). In *Genealogy and the Librarian: Perspectives on Research, Instruction, Outreach and Management*, Cheri Daniels discusses the notion of genealogy literacy in her chapter titled "Genealogy Literacy: Helping Patrons Build Stable Trees Through Information Literacy Standards," and creates a definition by mapping each section of the Information Literacy Standards (a precursor to the current Association of College & Research Libraries (ACRL) *Framework for Information Literacy for Higher Education*) onto concepts of genealogy reference help (Smallwood & Gubnitskaia, 2018, pp. 176–179).

Applicable Literacies

Digital literacy is widely recognized and implemented within the broader fields of education and policy, but its meaning remains somewhat nebulous, usually applied to scholarship and projects related to computer, information, and media literacy (Nichols & Stornaiuolo, 2019). While incorporating information literacy into library instruction and practice has become de rigueur, practitioners do not generally include technical skills, thus giving rise to the necessity of mapping information literacy concepts to computer (digital) skills.

The early to mid-2000s saw a shift away from prescriptive, skill-based competencies towards more descriptive narratives of how digital mediums are used to create knowledge in local communities (for example, Boyd, 2014; Gee, 2003; Hull & Katz, 2006). Nichols and Stornaiuolo (2019) argue that it "might mean reclaiming from the past an attention to the internal complexities of technical systems, and providing both descriptive accounts and prescriptive strategies that can illuminate and guide activities in these domains" (p. 20).

In 2013, the American Library Association assembled a task force to define digital literacy and make policy recommendations about the role of libraries in fostering digital literacy skills. They defined digital literacy as "the ability to use information and communication technologies to find, understand, evaluate, create, and communicate digital information, an ability that requires both cognitive and technical skills" (American Library Association, 2013). Heuristics like the CRAAP test are often used to teach users how to evaluate the validity of digital content (Blakeslee, 2004); however, it has been argued that "most literacies are heavily domain-dependent, and based not on skills, but on a body of knowledge that comes from mindful immersion in a context" (Caulfield, 2016). Caulfield suggests that more concrete tools should be given to students when teaching them how to evaluate information resources.

Archival and primary source literacies have been created by the archival community to identify and assess instruction in archives and special collections, most often in a higher education setting (e.g., Carini, 2016). A key reason for developing this specialized literacy was a fear that younger demographics were less equipped to critically analyze and interpret non-electronic documents (Carini, 2016). An early model identified three areas for archival researchers: archival intelligence, subject knowledge, and artifactual literacy (Yakel & Torres, 2003). Carini (2016) fleshed out this model into a six-standard information literacy for archives and special collections with outcomes for each standard. The Society of American Archivists (SAA) and ACRL's Rare Books and Manuscripts Section (RBMS) jointly published their own primary source literacy guidelines in 2018 that includes 22 learning objectives spread across five categories: conceptualize; find & access; read, understand, & summarize; interpret, analyze, & evaluate; and use & incorporate (SAA-ACRL/RBMS,

2018). Like the ACRL *Framework*, Carini and the SAA-ACRL/RBMS frameworks are broad and do not follow any certain order of complexity or information-seeking journey.

Information literacy tools and research often focus on formal education settings, yet adult information literacy has distinct indicators and its utility extends far beyond classrooms. Information literacy has been at the heart of United Nations' initiatives and goals related to public health, employment, and civil participation for over a decade (UNESCO Institute for Statistics, 2018). The Alexandria Proclamation of 2005 stated that information literacy was essential not just for educational purposes but also lifelong personal, social, and occupational goals (Participants in the High-Level Colloquium on Information Literacy and Lifelong Learning, 2005). The elements of information literacy defined by the United Nations Educational, Scientific and Cultural Organization's Information for All Programme in their 2008 report do not include technical skills, but they are implied through elements like "store and retrieve information" (Catts & Lau, 2008). Information literacy allows for the creation of a full "knowledge chain" where citizens take in information, create knowledge, and use that knowledge to create or disseminate new information in their communities. Research shows that adults learn in different ways than children and that they respond better to training that focuses on tools and resources that fill a targeted need, as opposed to the cumulative, complex educational models that are more common in formal education (Stern & Kaur, 2010). This research is rooted in the model of andragogy, which, as opposed to pedagogy, is the theory that adults learn better when a learning experience is tailored to their experiences and interests.

Archivist and Librarian Classroom Collaboration

While instructional collaboration between archivists and librarians is a naturally synergistic alliance, there is a dearth of literature surrounding such collaborations, particularly on the creation and teaching of whole courses. Within literature focusing on archival outreach, there has been a call for an "integrative approach": archivists finding and focusing on spaces where potential constituents already spend time and energy, and integrating instructional practices with established habits and interests (Rettig, 2008), or the "Archives 2.0" approach, which involves archives proactively attracting new users (Theimer, 2011). In her review of crowdsourcing projects at the British Library, Ellis (2014) concludes that collaboration with the community helps "create a sense of pride and ownership in cultural and information institutions" (p. 4).

Academic librarians regularly engage in outreach and instruction with a defined audience: that of the institution's students and faculty. ACRL (2011) guidelines state that libraries need to empower librarians to "collaborate with faculty and other academic professionals in planning, implementing, and assessing information literacy programming". One instance of local practitioners facilitating a cross-institutional partnership saw a map librarian from the University of Minnesota and a special collections librarian from the local county library offering free classes on resources about the history of neighborhoods in Minneapolis (Lawton & Block Lawton, 2009). The authors concluded that the "everyday people" who participated were given the tools to foster a deeper appreciation of the places they lived (Lawton & Block Lawton, 2009).

Aims

As a result of teaching a family history research course for adult learners, the authors developed the following research question: What tool(s) can facilitate the combined teaching of family history research with digital literacy? Bringing together the viewpoint and expertise of a web/user experience librarian and an archivist, the resulting Introductory Digital Skills and

Practices in Genealogy (IDSG) document is rooted in the experiences of teaching a full course on the subject, data collected in class activities and post-course evaluations, and related literature about digital and primary source literacies. The authors sought to create a body of tangible skills and practices for instructors of family history research to negate the need for expertise in literacy standards and learning outcomes. In describing the facilitation of this course and the IDSG, the authors aim to inspire similar instructional collaborations that include teaching fundamental digital skills.

This work occupies a particular niche in the literature, combining aspects of adult information literacy, digital literacy, genealogy, librarian/archivist teaching collaboration, and digital preservation best practices; yet, its results are broadly applicable. Genealogy will likely remain a popular hobby, librarians and archivists will continue to develop and implement closely related areas of expertise, and the digital realm in which genealogy research occurs will continue to evolve, requiring technological agility and acumen. The authors' goal is to inspire other archivists and librarians to cultivate needs-based teaching opportunities in their wider communities and to draw on the IDSG artifact as a starting point in family history instruction.

Methods

Despite the popularity of genealogy research, its key constituents—older adults—often lack confidence in their technological skills, and have trouble identifying factual information online (Anderson & Perrin, 2017; Gottfried & Grieco, 2018). Recognizing this potential contradiction in skills and interest, the authors—an archivist and a web services librarian—came together to offer the first-ever family history course at the Osher Lifelong Learning Center at the University of Montana (MOLLI). Given their combined expertise in local history, primary source research, and information/digital literacy, the authors titled the course "Conducting Family History Research: Digital Literacy & Research Methods." They predicted that a class on genealogical research might be popular in their local community of adult learners, and they were right: Once listed, the course was at capacity (30 students) weeks before it began.

Two bodies of data were used to inform the creation of IDSG. The first data corpus consisted of a survey of students' learning goals, taken from an activity conducted during the first class wherein students were asked about their goals for the course. Instructors wrote these goals on a white board for general discussion and consensus building, with the aim of empowering the class through self-directed learning. The authors photographed the white board and later coded these answers based on their relevance to common skill-based values: discovery and navigation of online resources, subject-specific knowledge, and genealogy-specific skills.

Though a fairly basic introductory classroom activity, this goal setting and subsequent mapping of skill-based values proved to be influential in the construction of the IDSG, particularly in how students articulated both their learning goals and what they didn't know. For example, although "digital literacy" was in the course title, less than a third of student learning goals were related to online research/resources. The majority of students sought instead to improve their domain knowledge and skills in historical research, such as gaining subject- or area-specific knowledge around a particular person or place. A full list of learning goals collected on the first day of class is detailed in Appendix B. Besides responding to these collected learning goals, the instructors spent much of the course refining students' expectations around genealogy research.

Post-course evaluations, created by MOLLI, provided valuable insight not only into what students learned but also what they didn't learn, and how they felt about this disparity. Out of 30 students, 22 (73%) submitted at least some

answers to questions from these course evaluations. A list of questions asked in the evaluation is located in Appendix C. Data from both pre- and post-class surveys were compared side by side to identify and code skill-based learning themes. Finally, reflection and analysis of the syllabus and post-course discussions between the authors also informed the development of the IDSG.

Findings and Results

It only took two class sessions for the authors to hit upon the observation that inspired and redirected the remainder of the course, and this paper. In order to help facilitate students' research, the authors had included a resource section on the course syllabus titled "Beyond Literacy: Good Research Habits." This document introduced an assortment of unofficial research and technical tips. While this list was meant to be informal, it sparked a lengthy discussion amongst the students that exposed a lack of foundational technology concepts—ones that the instructors had mistakenly assumed most students had already mastered. Once the class dove into these "tech tips," however, the questions flowed freely: What is a hard drive? What is "the cloud"? How do I hold down two buttons at once on my keyboard? From then on, every class session contained a 15-minute "tech tips" section, where the instructors shared one technology-based skill or tool and gave students time to practice. Each tech tips section was informed by student input. At the end of the course, instructors refined and compiled these "tech tips" into an artifact that they then shared with students (found in Appendix D). While three students indicated on course evaluations that they felt they had learned a good deal about conducting online research, five students noted that they still felt overwhelmed by either the online components of the class or the computers that they had to use for classwork (the class was held in a computer classroom to accommodate some students who didn't have a laptop or tablet to bring to class). The IDSG was created as a strategic tool to prevent students from being overwhelmed in similar future courses.

Survey Results

Seventy-three percent of students (22 of 30) responded to the course evaluation. In comparing these responses to students' original learning goals, the authors were not surprised to see that, while students generally expressed satisfaction with the course itself, they remained frustrated with their perceived ability to access and utilize digital resources for genealogical research. One stated, "I was a very beginning novice in research and computer skills, so could have used more basic information/skills." Another wrote that "the first classes were pretty esoteric and over my head. I think more research facts and how-tos would be more helpful." Students' responses indicated that many were looking for a true introductory course to genealogy, which ultimately was not the stated directive of the course: MOLLI specifically asked the instructors to provide something more nuanced than an introductory course on genealogy, as the learning centre had provided a number of those in the past. As such, the authors proceeded to develop a class plan and syllabus specifically tailored to digital literacy, predicated on the incorrect assumption that students would arrive to class already equipped with basic digital literacy skills. While the negative comments were disheartening, the authors are cognizant that they primarily stemmed from frustrations around technology: the inability to keep up with in-class activities on computers, delayed or rushed class instruction due to the instructors spending class time troubleshooting students' computer questions, and confusion around various topics. As one student noted, "Explanations, for me anyway, could have been adjusted a little more to a 'not very digitally literate person' like myself! Certain things escaped me!" This feedback ultimately proved, however, to both validate instructors' observations around digital literacy throughout the course and inform the development of IDSG.

Many students did express satisfaction with the complexity and nuance of class discussions, readings, and information resources, and the authors felt that one of the most successful aspects of the course lay in broadening students' horizons within the vast realm of genealogical research. Students expressed enthusiasm around topics like the ethics of DNA testing and proprietary genealogy websites, the seemingly endless amount of freely available digital genealogical resources, and the very notion of "digital literacy." "Everything about the course was tailored to getting students to understand digital literacy and family history—the very intimate, urgent relationship between them," one student wrote.

Introductory Digital Skills and Practices in Genealogy (IDSG)

The IDSG document is located in Appendix A and is meant to be used by instructors of all kinds to summarize introductory digital literacy skills for family history researchers. These skills are structured within three frames, which are further organized into components and competencies. Responding to Caulfield's (2016) ideas about digital literacy, this collection of skills and practices was created with the belief that researchers of family history need to combine digital domain knowledge with historical domain knowledge in order to efficiently and enjoyably conduct family history research. IDSG is split into three frames: "Discovery and Access," "Discerning the Value of Information," and "Information Storage and Organization." These frames were informed by students' responses to the learning goals survey implemented during the first class session, as well as observations noted during the implementation of "tech tips" throughout the course. This portion of the paper details the ways in which librarian and archivist expertise came together to formulate the IDSG section by section, in concert with applicable research and the pre- and post-class surveys from students.

Frame #1: Discovery and Access

The first frame of IDSG, "Discovery and Access," is derived from the hybrid of online and physical resources that define, and complicate, genealogy research. Public libraries are a natural centre of discovery, as these institutions serve as services and collections access points for members of the general public. Many public libraries, too, retain their own genealogy sections and experts. Previous research has also shown that novice archives users have trouble distinguishing libraries from other public institutions like archives, historical societies, local museums, and newspaper archives (Hensley et al., 2014). In a time when users often feel adrift in huge swathes of digital information, it can be reassuring for overwhelmed beginners to have instructors emphasize the importance of nearby institutions that facilitate local research. In the course evaluations, two students highlighted the knowledge they gained around local spaces and institutions, as well as a desire for more guest lectures from leaders in local historical and genealogical organizations.

Based on their experiences providing library and archival reference assistance, the authors also identified five foundational skills and practices for the discovery of online genealogy resources. These competencies are primarily concerned with defining and distinguishing groups of needed information and focus specifically on library catalogs, archival finding aids, and digital asset management systems (DAMS) as the primary online discovery and access tools. These tools provide access to information in different ways and are often inconsistent across institutional platforms. Providing examples of these different groups of online discovery and access tools in context is thus invaluable for teaching genealogical research concepts as well as introducing individual resources. The importance of distinguishing between these types of platforms is also identified in the SAA-ACRL/RBMS's guidelines for primary literacy: "Distinguish

between catalogs, databases, and other online resources that contain information *about* sources, versus those that contain digital versions, originals, or copies of the sources themselves" (SAA-ACRL/RBMS, 2018, p. 5).

IDSG Frame #1 is also influenced by the course's original tech tips document (Appendix D). These tools and practices represent simple mechanisms to increase the efficiency of online research. Within the computer classroom used for this course, some students' technological insecurities were heightened by using an unfamiliar computer or operating system. Because of this, directions for technical skill are given for use with both PC and Macs in the tech tips document. The need for simple, authoritative technology tutorials is one that extends beyond older adults: According to internal Google research, only 10% of people know how to execute Ctrl+F, the find function that allows you to search a web page or document (Marks, 2011).

Frame #2: Discerning the Value of Information

Returning to Michael Caulfield's (2016) observations on the shortcomings of source evaluation heuristics without domain knowledge, a key takeaway from both teaching this course and subsequent auxiliary research lies in the necessity of background historical knowledge for family history researchers. Duff and Johnson (2003) call knowledge of local history and context "vital" and assert that it improves searching behaviours. Rather than asking students in genealogy courses to grapple with abstract literacy frameworks, IDSG specifies competencies like the "ability to identify and locate authoritative texts to build historical domain knowledge" within its second frame, "Discerning the Value of Information," as a primary component of genealogical education. The CRAAP test is also used within this frame to introduce the concept of digital literacy. While the CRAAP test has limitations, it is a helpful introductory heuristic to teach students how to identify basic elements of web documents.

One frame of the ACRL *Framework for Information Literacy* (2015) states that "Authority is Constructed and Contextual." Genealogy instructors should emphasize the importance of researchers familiarizing themselves with the professional genealogical organizations responsible for creating structures of authority and standardization as a way to both direct and contextualize their research. For this course, the instructors asked students to explore the Certified Board of Genealogists (CBG) website and discuss some of the primary functions of that institution. Unlike their local group (the Western Montana Genealogical Society), CBG has extensive research standards, a code of ethics, and even a process for discipline and dispute resolution. While none of the students were ultimately interested in CBG membership or certification, this activity allowed them to explore the broader world of commercial and legal genealogy and asked them to consider the functional purpose of professional practices (for instance, the standard of proof) that might seem arbitrary within their less formal family history research.

Frame #2's scaffolding was directed by the librarian author, who had experience teaching information literacy skills in a classroom setting. But by specifically identifying local societies and cultural heritage institutions, this frame also counters the limitations of frameworks and heuristics: Finding local experts and plugging into an existing community is invaluable for the family history researcher. The archivist author was much more "plugged in" to this human network than the librarian author, due to her frequent interfacing with such resources through reference and research work.

Frame #3: Information Storage and Organization

"Information Storage and Organization" constitutes the most technically arduous frame of the IDSG document. Students seemed to understand some of the competencies housed within this frame, but only as they applied to their current computing practices. They did,

however, identify the need for these skills in their learning goals. One student noted that they wanted to learn how to "organize information" more efficiently, while another indicated a desire to more effectively "us[e] [resources] and writing" (Appendix B). The instructors observed that, when placed in a new environment (the computer classroom) or on an unfamiliar device, students lacked the technological resilience to fulfill practical tasks. The skills captured in this component of the IDSG cover the how, where, and why of storing information, from personal note-taking to oral histories and public records. Foundational to building this technological resilience is understanding common file types, knowing how to store them, and how to convert them. Best practices in digital archiving and preservation served as the basis for identifying the skills necessary to fulfill the "Information Storage and Organization" frame.

Despite the course's focus on text-based files, most genealogical research necessarily involves both image and audio files. Many family history researchers are involved in the care and preservation of familial historic documents and photographs, often taking photographs or scans of these analog materials. This means that, in addition to any text-based documents, they are also likely creating, managing, and storing digital image files, which requires specific digital skills. While many digital collections are publicly available, not all are immediately available for convenient download. In the event that digital items are not openly available for immediate download, the instructors noted the importance of understanding how to download and save digital images from a restricted digital collection.

Oral histories continue to be increasingly prevalent in public repositories of historic resources, and family history researchers should understand how to both access existing oral histories and, potentially, conduct and preserve their own (many students in the course expressed a desire to pass their research on to children and grandchildren). Public institutions like the American Folklife Center at the Library of Congress retain helpful checklists for planning and conducting oral history interviews, and many other organizations (most notably NPR's StoryCorp) have launched phone applications for this purpose. The authors also provided a brief overview of the landscape of available recording equipment, applications, and documentation for oral histories, with the archivist providing much of the digital preservation expertise.

Finally, the authors regularly used terms like "hard drive," "Google Docs," and "the cloud" throughout the course, a practice that was to become a major source of confusion for students. It is thus imperative that instructors facilitate a clear discussion of file storage options at the outset of instruction. Defining nebulous technical terminology, and incorporating activities that demonstrate these concepts, can go a long way towards building confidence in students' own technical abilities. As a user experience librarian and content strategist, the librarian author quickly noted that simple and precise technical language, along with clear explanations, was key to alleviating anxiety in students.

Discussion

Summary and Findings

While both instructors believed at the outset of the course that an archivist/librarian collaboration would prove to be a compelling and particularly fruitful partnership, neither anticipated the ways in which this alliance would inform discoveries around digital literacy skills for family history research. They were forced to adapt both the syllabus and individual class structure as the course progressed and it became apparent that students required additional guidance for technological tasks. The resulting framework, the IDSG document, serves as an artifact that melds threads of primary source literacy with digital and information literacy to form a tool that has the

potential to enhance genealogical and archival instruction, empower and equip adult learners and beginner family history researchers with basic and necessary digital skills, and contextualize genealogical research within traditional information literacy frameworks.

The authors found that the platforms and practices that defined their work as librarian and archivist were very different when it came to discovery and access. It took a good deal of learning about each other's practices for them to be able to identify and articulate the ways in which discovery tools and information artifacts commonly used by archivists were different from those used most often by a librarian, particularly with regard to user experience and behaviour. For example, why is a finding aid different from a research guide, and why do they often live on separate platforms? It was necessary to obtain a full understanding of both unique information landscapes in order to create a complete picture of discovery and access that students could learn to navigate. Both authors occasionally experienced frustration with the significant differences between these information landscapes, particularly for the sake of their students.

Digital literacy frameworks prioritize the skills required to create online content and perceive oneself as the creator (De George-Walker & Tyler, 2014). Asking students to do so in an introductory course went beyond the parameters of the authors' goals. Instead, the course set the stage for creating a local "participatory genealogy culture," one in which students could begin taking part (Jenkins, 2009). Building out from a digital literacy and family history research course, instructors envisioned facilitating other librarian–archivist collaborations like Wikipedia edit-a-thons (for example, Sliger Krause et al., 2017) or planning a second course incorporating more sophisticated research and digital literacy skills. The construction of a locality guide, a reference document used extensively by family history researchers requiring regular maintenance, would provide another opportunity for a cohort of graduates from an introductory genealogy course to enact the skills and practices from IDSG.

Expanding family history researchers' online expertise, resilience, and well-being not only improves the genealogy research experience but has potential for making a positive civic impact, as well. The digital skills on which this case study focuses are transferable to many other online behaviours that define everyday life (e.g., reading the news or researching a new car) and can help adult learners better navigate an ever-expanding body of online resources. Further opportunities for research could include studying the impact of teaching digital skills for family history research on adult learners' success at online tasks, like identifying trustworthy news sources.

Exclusions and Limitations

The methods and instruments used to collect data in this case study have limitations. First, the instructors did not implement matching pre- and post-course assessment tools in order to track either students' achievement of learning outcomes or their ability to locate and assess digital information sources before and after the implementation of the course. Instead, the instructors believed they would have subsequent opportunities to teach further iterations of this course and more carefully craft assessments based on what they learned. This was not to be the case, as both instructors departed the University of Montana within a year of teaching this initial course. Second, neither had experience developing or teaching a full course and did not have the tools to scaffold a new course and assessment around learning outcomes. Still, the insights gleaned from these methods directly informed the creation of the Introductory Digital Skills and Practices in Genealogy in invaluable and informative ways.

In deciding what to include in the IDSG, the authors chose to omit content that is covered in

other genealogy or digital literacy resources or that could not be scoped to skill-based practices. The IDSG also excludes any discussion of popular family research platforms and services like FamilySearch and Ancestry, despite students' identification of common goals around learning how to use such specific genealogical resources. In spite of this desire to hew away from discussing specific information resources, the authors did prioritize resources from local cultural heritage institutions in their instruction, as opposed to proprietary websites. They faltered in articulating this intention to students, however, and recommend that fellow librarians and archivists engaging in genealogical instruction clearly communicate to students the extent to which they will (or will not) engage with popular online genealogy resources throughout the course. In the final course evaluations, three students explicitly expressed disappointment that they did not receive step-by-step tutorials for online tools like Ancestry.com.

Conclusion

This case study describes the context and creation of an evidence and practice based set of digital skills to answer the research question: What tools can we build to assist instructors in teaching the basics of family history research that combine digital skills with research skills? Existing literature discussing related literacies often describes abstract concepts, not practical skills. The Introductory Digital Skills and Practices for Genealogy document is a melding of archivist and librarian expertise that is meant to enhance students' practical skills and domain knowledge in both historical research and digital literacy.

For adult learners, participating in a creative and challenging hobby like family history research is enjoyable, deepens a sense of familial belonging, and has the potential to improve overall health and wellbeing (Conner et al., 2018). The authors saw this positive impact first hand in the form of a subset of students who, after the course completed, continued to gather at the local public library each month to both conduct their individual genealogical research and to support one another's work. One of the authors had the opportunity to attend one of the regular meetings and witnessed the camaraderie that stemmed from the former students' collaboration.

For the authors, collaborating to implement a full course provided a rare opportunity to bring together complementary expertise in order to provide a unique educational opportunity for community members. These types of collaborations are infrequently described in existing literature. The artifact that resulted from this case study, Introductory Digital Skills and Practices in Genealogy, is meant to inspire and assist others who want to teach family history research, and to encourage them to make tangible digital skills a focal point of their instruction.

Author Contributions

Jaci Wilkinson: Conceptualization, Formal analysis, Investigation, Methodology, Project administration, Writing – original draft **Natalie Bond:** Formal analysis, Investigation, Project administration, Writing – review & editing

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Appendix A

Introductory Digital Skills for Genealogy (IDSG): A Guide for Instructors

Frame #1: Discovery and Access

1. Discovering local organizations and resources
    - Is able to gain access and/or membership to a local public library and accompanying websites and catalogs.
    - Understands how and when to use interlibrary loan.
    - Can identify local institutions with publicly available online resources or documents focusing on local history (e.g., Church of Jesus Christ of Latter-day Saints libraries, local historical societies).

2. Finding and evaluating online resources
    - Is able to navigate online finding aids; understands how finding aids are constructed.
    - Has an increased capacity for distinguishing between digitized and non-digitized archival resources.
    - Understands the importance of using online resources to discover resources not available online.
    - Knows key national government organizations that provide freely available digitized resources.
    - Understands the kind of information contained within online library catalogs, as well as both the capacity and limitations of this information.
    - Understands what oral histories are and how to access transcripts.

3. Streamlining the online research experience
    - Understands and can execute opening a link in a new browser tab versus a new window.
    - Knows how to zoom in and out on text and images within a browser window.
    - Can search for words or phrases in a long page or document.
    - Is able to take a screenshot.

Frame #2: Discerning the Value of Information

1. Selecting and evaluating sources
    - Can determine the "provenance" of an online resource using information contained within the document and accompanying metadata.
    - Is able to apply the CRAAP test to online resources that are not historical documents.
    - Has an increased capacity for critically reading and evaluating the utility of academic articles.
    - Is able to seek out subject experts at local cultural heritage institutions for assistance in selecting and evaluating resources.

2. Building domain knowledge
    - Can identify pertinent historical and cultural events that influence personal family history research. Uses this domain knowledge to construct strong search terms.
    - Is able to identify and locate authoritative, canonical texts to build historical domain knowledge that will assist family history research.
    - Has knowledge of professional genealogical organizations and the resources and services they provide.

3. Citing and attributing works
    - Is able to implement a consistent citation style.
    - Has a basic understanding of citation conventions for genealogical research.
    - Can create in-line, hyperlinked text.

Frame #3: Information Storage and Organization

1. Identifying file types and their utility and conversion
    - Can differentiate between PDF, DOCX, and HTML files.
    - Understands the difference between TIFF and JPG/PNG files.
    - Is able to convert DOCX and HTML files to PDF, and understands why this matters.
    - Is able to save a web page as a PDF.
    - Is able to save an image from a web page in the absence of a "download" button.

2. Recognizing file storage options
    - Understands the difference between storing information on a hard drive and "in the cloud."
    - Has basic knowledge of common cloud-computing applications and services.
    - Understands how to use external storage devices, such as an external hard drive or flash drive.

3. Creating and saving oral histories
    - Has basic knowledge of the equipment needed for conducting and capturing oral history interviews.
    - Knows the recommended file types for preservation (WAVE) and sharing (MP3).

Appendix B
Pre-Course Survey: What Did Students Want to Learn?

Discovery and Navigation of Online Resources	Subject-Specific Knowledge	Genealogy-Specific Skills
"User-friendly resources"	"Native American genealogy (Flathead & North Dakota)"	"The basics"
"Online resources"	"Irish immigrants"	"DNA versus family tree"
"Assess credibility of websites"	"Military records"	"Identifying people in photographs"
"Ancestry.com navigation"	"Homesteads"	"Develop family tree from scratch"
"National Academic Library digital resources"	"Fort Lewis"	"Using [resources] and writing"
"Enough info to get a reduced rate at Missoula Cemetery"	"Translation of foreign documents"	"Finishing family projects"
"Organizing information"	"Civil War"	
"Library of Congress and National Archives"	"International research: first-generation immigrant"	
"Resources that can correct incorrect information"	"Story behind ancestors' common names: Who has the correct one?"	

Appendix C
Course Evaluation Questions

1. The course as a whole was:

❑ Excellent
❑ Very Good
❑ Good
❑ Fair
❑ Poor
❑ Very Poor

2. The course content was:

❑ Excellent
❑ Very Good
❑ Good
❑ Fair
❑ Poor
❑ Very Poor

3. The instructor's effectiveness in teaching the subject matter was:

❑ Excellent
❑ Very Good
❑ Good
❑ Fair
❑ Poor
❑ Very Poor

4. How would you rate the instructor's explanations?

❑ Excellent
❑ Very Good
❑ Good
❑ Fair
❑ Poor
❑ Very Poor

5. Class sessions were interesting and engaging:

❑ Excellent
❑ Very Good
❑ Good
❑ Fair
❑ Poor
❑ Very Poor

6. Class sessions were well organized:

❑ Excellent
❑ Very Good
❑ Good
❑ Fair
❑ Poor
❑ Very Poor

7. Did this course meet your expectations based on the description in the brochure?

❑ Yes
❑ No

8. Would you take another course from this instructor?

❑ Yes
❑ No

9. What did you like about this class?

[Open response field]

10. Do you have suggestions about how this course could be better?

[Open response field]

11. Do you have any suggestions for other MOLLI instructors/courses?

[Open response field]

Appendix D
Tech Tips
Note: When two keys are listed with a "+" in between, hold down the first key listed and then press down the second key so that both keys are held down simultaneously.

Action	**Keystrokes for computer running an Apple operating system (Mac)**	**Keystrokes for computer running on a non-Apple operating system (PC: examples include Windows, Linux)**	**What it does**
Find	Command + F	CTRL + F	A search box will appear, and you can type in keywords and phrases to see if that page or document has any of those words.
New tab	Command + T	CTRL + T	Opens a new tab in your browser (e.g., Firefox, Safari, or Chrome).
New window	Command + W	CTRL + W	Opens a new window in your browser (e.g., Firefox, Safari, or Chrome).
Open link	Right click with your mouse or, using a trackpad, hold down the control key and then click with your trackpad. A list of actions will appear. Select "Open link in new tab."	← Same	Opens a link in a new tab in your browser so that your current screen doesn't disappear.

Action	**Keystrokes for computer running an Apple operating system (Mac)**	**Keystrokes for computer running on a non-Apple operating system (PC: examples include Windows, Linux)**	**What it does**
Hyperlink text	Highlight text you want to have hyperlinked, right-click, select "Link" from menu, and paste a URL in the field. After link is created, make sure there is a strong visual difference between linked and unlinked text (usually blue and underlined).	← Same	Allows you to "hide" a URL in text, especially in a citation.
Zoom	In the options at the top of your browser, click View >> Zoom >> Zoom In.	← Same	Makes text or images larger inside your browser. These steps may vary slightly from browser to browser.
Save web page	From the browser's main menu, click File, then Print. In the print pop-up, find near the bottom "Open a PDF in Preview." Once PDF is open in the Preview application, click File in the main menu, then Save.	← Same	Saves a full webpage (even what isn't on your screen if you have to scroll to see the full page) as a PDF so all text and images are preserved. This is a great idea in case the website disappears unexpectedly.

Action	**Keystrokes for computer running an Apple operating system (Mac)**	**Keystrokes for computer running on a non-Apple operating system (PC: examples include Windows, Linux)**	**What it does**
Take a screen shot	Press and hold down Command, Shift, and the 4 key. When your cursor (usually a black arrow) turns into a plus mark with a circle at the centre, let all three keys go. Hold down your cursor and draw a box around where you want a screen shot taken. The screenshot will be saved as a JPG in your Desktop folder.	Press the PrtScn button on your keyboard. This will take a screenshot of your whole screen and copy it to your computer's clipboard. Open Microsoft Paint, go to File, and click Paste. The screenshot will appear in Paint. Save the image as a PNG.	Saves an image of what is on your screen (usually as a JPG or PNG).