Digital Literacy Training for Canadians, Part 1: "It's . . . Just Core Public Works"

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ABSTRACT

In the first of two articles, interviews with administrators of digital literacy programs in Canadian public libraries and other community organizations revealed a sector working to address the digital divide, focusing on marginalized people. Programs narrowly defined *digital literacy* as skillful use of a range of basic and more advanced technologies. Funding from corporate or other external sources and community interest are key to establishing programs. Challenges arise from lack of resources, including staff time, and limited staff expertise, as well as competition for learners' time.

This study seeks to better understand digital literacy instruction in public libraries and other community organizations and to reveal effective approaches for digital literacy training, including evaluation of these initiatives. Three areas of focus across two study phases include (*a*) organizational factors that foster or challenge digital literacy initiatives led by public libraries and other community organizations; (*b*) user considerations that influence community-member uptake of these initiatives, lead to gains in digital literacy skills development, and foster greater digital literacy appreciation among community members; and (*c*) performance measures that effectively evaluate digital literacy initiatives led by public libraries and other community organizations. This article is the first of two articles in a series and is focused on the organization of digital literacy programs; it does not address success or performance measurement, which will be discussed in the second article.

Examining Canada's present and future of digital literacy by the Brookfield Institute of Innovation and Entrepreneurship, Tea Hadziristic (2017) suggests that the nation falls behind others in the twenty-first-century digital economy. Multiple digital literacy initiatives have been advocated at the national level, but government attention has been focused on infrastructure and security. Digital literacy is recognized as a key component of Canada's talent strategy (ICTC 2016), and a national strategy in this area is in progress (Innovation, Science, and Economic

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Development Canada 2018). Canada's Information and Communications Technology Council (ICTC) identifies digital literacy as a precondition for education, work, and citizenship. The ICTC argues that the economy of a forward-looking society depends on a cultural embrace of digital literacy: it will attract business, facilitate new advances in automaton and artificial intelligence (AI), and lead to increases in social and national dialogues. A culture that values and pursues digital literacy also increases its citizens' employability and entrepreneurship. Particular demographic groups, including women, youth, immigrants, Indigenous peoples, and persons with disabilities, could benefit from digital skills training (ICTC 2016).

Others agree that digital literacy is fundamental to an inclusive and innovation-driven knowledge economy such as Canada's; it will ensure that citizens are able to adapt, engage, innovate, and benefit from information technology (IT; MediaSmarts 2015). Public libraries and other community organizations play key roles in the promotion of digital literacy skills, as this skill set is a significant contributor to the economic health of communities and individuals (Horrigan 2015; Public Library Association 2018). The public supports libraries in this role, particularly to help the most vulnerable groups to develop digital literacy skills (Horrigan 2015).

Literature Review

Digital Literacy

Numerous definitions of digital literacy exist. One enduring question seems to be whether the term should apply to skills (e.g., internet search strategies or competency with hardware and software) or to a set of attitudes and mindsets about digital information and technology. Paul Gilster (1997) argues the latter: digital literacy is an individual's (or society's) position toward a digital world that should underlie technological skills and thus facilitate a user's openness to obtaining them. He stresses that "digital literacy is about mastering ideas, not keystrokes" (Gilster 1997, 15). David Bawden (2008) suggests a framework for four components of digital literacy: underpinnings (textual literacy and computer and IT literacy), background knowledge (appreciation of the information world and its resources), central competencies (reading, understanding, and creating digital information formats), and attitudes (self-sufficient learning and understanding social equity). Michael Hoechsmann and Stuart R. Poyntz (2012) argue that digital literacy must also include developing "a cultural ethos" (142) that welcomes and embraces digital information and the skills to work with it. Paul T. Jaeger and colleagues (2012) posit that digital literacy is the ability not only to understand available information but also to create new information and thereby participate in a free exchange of ideas.

Complicating a stable definition has been the recognition by many authors that digital literacy is not a singular state or practice but rather a complex array of aptitudes with which to access the digital information world and to change it. Allan Martin (2006) suggests that traditional understandings of literacy have been upended by a world increasingly driven by

digital encounters (e.g., social media and e-commerce). Consequently, there are a number of new literacies: the "mastery" of computer skills and the "reflective" skills needed for critical thinking and problem solving in digital information environments; access to digital technology, such as classroom computers, and technological training for teachers and other educators; the interpretation of message genres, evaluation of content, assessment of the intentions of sources, and the expression of new information; and users' problem solving and critical thinking in the nontextual information of digital environments.

Tibor Koltay (2011) stresses the importance of competencies in digital literacy (e.g., internet skills, hypertext navigation, knowledge assembly, and information evaluation) and concludes that digital literacy is a mindset or set of attitudes that prepare a person for citizenship in a digital world. Koltay also argues that digital literacy must encompass the ability to transform information and apply it to individual and social judgment and action. Similarly, Rodney H. Jones and Christopher A. Hafner (2012) argue that digital literacy is a set of tools; however, like all tools, they change our engagement with the world. Digital literacy shapes the possible viewpoints one encounters, demanding both open minds and critical reflection about the credibility and ethical use of digital resources. It guides new kinds of creativity and interpersonal expression, exposing users to new ways of modifying information in ways that analog technology could not. In this view of digital literacy, there are new skills (search algorithms, hyperlinked information, the read-write web) and broader awareness of the ways that socioeconomic imbalances enable or limit access and use. These new modes of creative expression simultaneously introduce a need to understand digital literacy as an ethical problem. As argued by Sara Armstrong and David Warlick (2004), digital literacy means grappling with new challenges: credibility and reliability of information in digital environments, property and authorship in these contexts where information is easily available and transformable, and the dire need for privacy and security where vulnerable information can be readily accessed or corrupted. The skills and mindsets of digital literacy thus demand further comprehension of one's citizenship in the digital world, "where the distinctions between producer and consumer have evaporated and the blurring between public and private worlds create new ethical challenges and opportunities for children, young people, and adults" (Hobbs and Jensen 2009, 5).

In Canada, as reported by the Media Awareness Network (2010), digital literacy is similarly approached as both a set of competencies and a mindset. A follow-up publication (MediaSmarts 2015) also forwards a definition of digital literacy that straddles competencies and mindsets, suggesting that "digital literacy is not a technical category that describes a minimum functional level of technological skills, but rather it is the broader capacity to participate in a society that uses digital communication technology in workplaces, government, education, cultural domains, civic spaces, homes, and leisure spheres" (4). Occupying a middle ground between a focus on competencies or mindsets, Heidi Julien (2018) defines digital literacy as "the set of skills, knowledge,

and attitudes required to access digital information effectively, efficiently, and ethically" (2243). This definition is used in this study.

The Role of Public Libraries in Digital Literacy

Shannon Mersand and coauthors (2019) propose that public libraries offer technology and instruction for patron digital access and outlets for creative expression. Public libraries create partnerships with government, nonprofit, and corporate stakeholders to shape access to digital information, readiness for the workforce, and critical understanding of sources. Sharon Strover (2019) similarly argues that public libraries play essential roles in the progress of digital inclusion and that great gains in their efforts can be seen in libraries' distribution of mobile hotspots to users. Hotspots are predominantly used by poorer households and largely by families of color. Before getting access to digital resources through hotspots, most people had access through the public library. Strover's (2019) findings demonstrate the catch-22 of information exclusivity: shrinking household resources (e.g., through loss of a job) often necessitates cutting one's technology and broadband use; however, it is precisely these resources that could result in better outcomes (e.g., a new job or further training). Mersand et al. (2019) conclude that public libraries play critical roles in the scaffolding of smart cities, which the authors suggest are notable for their recursive feedback between government and citizen policy and welfare. In a world shaped by digital information, public libraries become touchstones for free access to necessary content on education, government, and health. Beyond digital inclusion, public libraries are social actors in the smart city's concentration on its citizens, "becoming techno-centric hubs that may help the jobless find employment, create and support maker labs for entrepreneurs to experiment in innovation, support digital literacy and other training programs, and advance e-government and citizen engagement" (3307).

In sum, the value of digital literacy, however defined, is generally agreed upon. The public library has claimed a role in digital literacy training, but the nature of this training has not yet been fully articulated, particularly in the context of Canadian public libraries and other community organizations, and challenges to success remain.

Purpose of the Study

Although digital or information literacy training is well documented in the higher education context, effective approaches to digital literacy training by public libraries and other community organizations have not been fully explored. For the purpose of this study, community organizations are defined as nonprofit organizations based in the community that seek to achieve goals related to improving a community's well-being. In this study, we ask the following question: How can public libraries and other community organizations best deliver and evaluate the digital literacy initiatives they provide to the communities they serve? Answers to this question are important to public libraries and other community organizations, as they

play key roles in digital literacy promotion in their communities. The research presented in this article explores organizational factors that foster or challenge digital literacy initiatives led by public libraries and other community organizations. The following research question is addressed in this article: What organizational factors (e.g., administrative factors) foster or challenge digital literacy training initiatives offered to local communities?

The goal of the study as a whole is to produce recommendations for practice about how to run successful digital literacy training events for local communities. The study is being conducted by scholars across multiple disciplines and supported by partners in the public library sector and other community organizations to seek understanding from interdisciplinary and interinstitutional perspectives because digital literacy is both important and complex, transcending the capacity of any one scholar, institution, or discipline.

Methods

The study reported here is the first phase of a two-phase study design conducted in Canada. The study received ethics approval from McMaster University and includes multiple community partners, Hamilton Public Library, McMaster Office of Community Engagement, Canadian Urban Libraries Council, and the Canadian Federation of Libraries Association, which are providing advice and support to the project. The first phase included interviews with administrators of public libraries and community organizations that offer digital literacy training opportunities and with the trainers and clients of these trainings. Phase 1 also included participant observation of training sessions, demographic surveys of clients, and analysis of training-related documents, but those data are not reported in this article. The second phase will include national surveys of public libraries and their clients to seek generalization of the qualitative findings reported here.

This article is focused on the interviews with 14 administrators in phase 1 who provided a rich picture of their planning, intentions, and experiences with digital training initiatives. The administrators represented two public library systems in the province of Ontario, Canada—one in a medium-sized city and the other in a large city—and five nonlibrary community organizations in the medium-sized city, including a local industry education council, a youth club, and a math-focused training program. These community organizations were chosen through snowball sampling. The research organizations are interested in facilitating community-based digital literacy training and are independent organizations but with ties to research universities in Ontario. They obtain their own funding streams through grants to conduct research in community-based digital literacy training.

All administrators interviewed were involved in the design and/or management of a digital literacy training initiative. The participants were recruited by direct contact, and all provided informed consent to participate in individual interviews. Interviews lasted from 45 to 60 minutes at a location of each participant's choosing. Interviews were digitally recorded and transcribed

by a transcription service, NoNotes. The interview protocol is provided in the appendix. Questions were drawn from activity theory (Vygotsky 1978; Leont'ev 1981; Engestrom 1987) to obtain insight on organizational factors affecting the implementation and rollout of digital literacy training initiatives. In this study, digital literacy training initiatives are treated as specific activities. A few questions were adapted from Brian Detlor et al. (2011), who interviewed librarians delivering information literacy training in business schools.

The researchers employed a constructivist grounded theory approach (Charmaz 2014) in which viewpoints of both participants and researchers influence interpretative understanding of the phenomenon under investigation. Specifically, grounded theory data analysis procedures (Strauss and Corbin 1990; Corbin and Strauss 2015) were utilized to identify codes and construct analytic categories through subsequent refinement, clarification, and constant comparison of more finely grained codes. Data analysis was conducted using DeDoose software. Following grounded theory data analysis procedures as advocated by Anselm Strauss and Juliet Corbin, data were coded by categories, based on institutional structure and choices (e.g., establishment of digital literacy programs, types of programs offered, target audiences, governance and structure of programs), which were then contrasted more finely by institution type and individual participant comments.

Results and Discussion

Establishing Digital Literacy Programs

The two public libraries included in this study were strongly committed to digital literacy training, as is demonstrated in the results. Furthermore, they complemented this commitment with a number of notable events: over the past 3 years, one organized two digital literacy "summits," and the other led a "digital literacy day" event and a "digital literacy week" event. Aside from these events, public libraries are also committed to ongoing training, as shown below.

The public library administrators (PLAs) spoke in broad terms about the democratizing social forces of libraries as motivation for focusing on digital literacy. There were comparisons of digital literacy in the twenty-first century to textual literacy in previous centuries, digital inclusion, and the fight against corporate monopolies on information and technology. Interestingly, community and research institutions were invested in the continuing relevance of libraries and mentioned this concern more frequently than library administrators.

All participants explicitly stressed the need to bridge the digital divide. One PLA stated, "It is important for private and corporate organizations to know that it is in their best interests that the digital divide is bridged. For example, take into consideration the current hype in the city about . . . becoming a 'Smart City.' You can't have a smart city without smart citizens. If you leave people behind [i.e., don't help them develop their digital literacy skills], then these people won't live up to their potential, participate in the smart economy, and won't be able to advance the City's priorities." Another said, "In the twenty-first century, equitable access to

digital information to computers, to Wi-Fi, and how to use it and the support and how to use it is just like learning to read in libraries in the twentieth century, it's required to be competitive in today's society, it's like a core democratic value of the reasons why libraries exist." An administrator from a research organization pointed to "the importance of needing to provide digital literacy training to populations that are underserved in society [e.g., at-risk youth; seniors, marginalized populations, newcomers to Canada]."

By far the most commonly mentioned factor affecting program implementation was funding, both for running the training and obtaining technology. This was true across organizational types. One research organization administrator stated, "This project had great funding. This money was used for curriculum design, hiring instructors, buying equipment and dealing with teaching space at the local community sites, hiring evaluators to design data collection instrument and analyze the results. This funding also supports . . . staff to render the final report document." Libraries were significantly motivated by partnerships with their cities, the province, community organizations, corporations (e.g., Google), and university stakeholders.

Mission statements also played a role in establishing programs. PLAs tended to discuss match between programs and their mission statements in broad terms, speaking about the institution as enabling self-sufficiency and open access. One participant noted, "As a public library, our goal has always been to help people get ahead, to help people, support people in their learning so they can succeed, and probably 30 years ago, it [became] very apparent as technology started to become a lot more pervasive, that if people didn't have technology skills, they'd be really at a disadvantage in the job market and socially. And so out of that, we started doing a lot of digital access and so it's a natural extension of that." The one community administrator who spoke about their mission statement said that the programing "absolutely" aligns with their mission, which is focused on empowering individuals and communities.

Types of Digital Literacy Training Offered

The most common digital literacy skills taught include coding, IT security, AI and robotics, audio and video recording, and basic computer skills (keyboarding, mouse use). In all contexts represented by the participants, "digital literacy" is interpreted as hardware- and software-focused digital technologies training; skills, rather than attitudes or mindsets, are the focus of these programs. Across institutions, there are opportunities for programs at several levels, including advanced training (e.g., AI, virtual reality [VR], 3D printing) and "intermediate" and basic programs (e.g., Microsoft Suite, Adobe, email and social media). Respondents stressed their enthusiasm about more advanced programs, particularly the development of makerspaces. Although this enthusiasm about advanced equipment is understandable, many also explained that they have developed programs for users with a variety of experience levels and needs.

The public libraries tend to train in basic skills: understanding and using computer hardware (e.g., a mouse and keyboard), social media, email, search engines, Microsoft Office software,

and iPads and tablets. Interestingly, PLAs tended to focus on basic programs, although library materials revealed instances of more advanced training opportunities, such as building video games and digitizing memories. Extending beyond basic training programs, the medium-sized public library also offers a digital literacy program that instructs users in HTML/XML coding and website design. Community organizations deliver programs at a range of levels. Two of these organizations offer advanced training in HTML/XML coding, 3D modeling and printing, and integrating STEM (science, technology, engineering, and mathematics) into digital learning. The third organization offers basic training in Microsoft Office, email, and social media. The research organizations offer advanced training in AI technologies; HTML/XML coding; and building webpages, games, and apps.

Target Audiences for Training

Public library programs focus primarily on young people (particularly at-risk youth, according to one respondent) and seniors. One respondent noted that their library is mainly interested in unemployed or underemployed individuals. The community organizations target young people, specifically in grades K–12, and populations not typically trained in digital technology, including individuals without access to university educations or working jobs in danger of disappearing to automation. Several community administrators explained that their programs center on women wanting to enter STEM fields. One community administrator stated that they are particularly interested in underrepresented groups. The research organizations show the greatest ambition and breadth of training programs, focusing on youth, adults, and seniors. Research administrators also commented that they are particularly interested in marginalized communities, including "Indigenous people, language minorities, persons who have low incomes, persons with disabilities, individuals aged 65 and older, and newcomers to Canada."

Interviewees offered reasons why participants take the training offered, which is primarily to increase employment opportunities and master new technology. Few programs offer a training certificate, although some administrators expressed a wish to do so. Other reasons for taking the training included a desire for increased education opportunities (e.g., entering college) and the accessibility of the training (i.e., no charge). Interestingly, administrators weighed in on some of the reasons people did not sign up, including competition with other commitments (particularly in summer months) or poor weather conditions (particularly in the winter). As one respondent noted, "These are types of skills that you might gain by going to a private college or to a community college, but they may not have the means in order to do that. They may be new to Canada. . . . If they have any training in their home country, it may not be recognized here. So, it's a way . . . to help that person become more employable." Another said, "Right now as we speak . . . there's probably somebody getting help with their resume or learning how to get an email address to apply for a job on an online site in a library right now in [city], there's probably many of them, so it's all part of that same continuum of

lifelong learning, workforce development, digital literacy, digital inclusion, it's . . . just core public works."

Organizations' Reasons for Offering Training

Administrators commonly explained their reasons for offering training as a need to combat the digital divide. They were concerned that the general public does not find value in digital technology (although they use it regularly). Increasing automation of the workforce also shaped decisions to run digital training programs. A prospectus for one of the community organizations stated that its digital training programs would parallel and reinforce the continued relevance of public libraries in their communities. This document focused on the expected unequal impacts of automation on people with little education and low income. These individuals, in particular, will benefit from a foundation of digital literacy skills. One PLA stated, "The libraries are these approachable, accessible, easy places to get to, hopefully, and we're all over the city, right? So, you can get there. I think it has a lot to do with remaining relevant." Another PLA said, "it's a way for libraries to position themselves as being leaders in terms of technology, but also community development. And I think that it has a lot to do with . . . the fact that libraries need to make sure that they're seen as relevant that despite everything, and years and years of trying, people still think books."

A research administrator stated that "we wanted to create a project where youth who are not traditionally represented in STEM fields could learn about HTML code and digital literacy. We decided to focus on digital literacy because we ultimately wanted young people to be able to use technological tools to solve problems, share their stories and critically understand how to engage with digital content." Another research administrator said, "We want to talk to youth who are looking for jobs and so they want to understand how AI can affect the way that they apply for jobs or through job screening or how they could use better understanding [of] AI or algorithms so that when they went into a job they understand the terminology. . . . Maybe it is seniors who are on Facebook all the time but don't really understand the Facebook algorithm and don't really know how to use it. So, core concepts but applied to real life situations."

Training decisions are overwhelmingly based on community input and interests, either known in advance or developed through environmental scanning. Input includes the needs of local schools and existing youth clubs and the more specific needs of library patrons (e.g., students needing to finish school projects). Another leading factor is funding and institutional backing, either from government or corporate funders. Respondents also commonly explain that their decisions are shaped by the availability of staff and associated issues, such as the ability to pay a living wage. Existing library needs (e.g., for more technology and staff training) also shaped the decisions about which programs to pursue. One community administrator stated, "We respond to need . . . that's identified within the community. . . . When we had several computers, they were very much used. And people in the community ask for more."

Governance and Structures of Programs

Administrators explained that governance of their training programs fits into existing community institutions, including libraries, youth clubs, and schools. In addition, most programs are offered at multiple sites rather than operating independently. It is also apparent that more programs require new staff to be trained rather than utilizing existing (e.g., library) staff. Five respondents reported that their programs were backed by corporations, such as Google. Public libraries tended to use a centralized steering committee, whereas community and research organizations were more informally structured. The large public library had an overarching steering committee for digital literacy, with underlying working groups focused on training. The medium-sized public library had one person who managed the program at each branch, and a steering committee decided on new curriculum and new technologies of focus. Decisions about what programs to offer are left to individual library branches. One PLA noted, "We have a dedicated person who basically manages the courses and so the grant money goes toward that. It goes toward any computer upgrades that we need to make in our labs." Another PLA stated, "when they organize a program, they do develop like sort of a method, 'Here's what we're supposed to do.' And then people can sort of riff off that a little bit, but there is usually a pretty good plan in place. And part of that is just to prevent people from reinventing the wheel all the time." One PLA said, "So far, we leave the branches to choose what program is appropriate for that location." Another PLA stated, "We aim for 75% system programs, meaning that those are planned through [the library system]. Now that is collaboration . . . but we have enabled 25% local innovation so that people can come up with their own ideas. . . . It's not the most efficient way of executing on learning programs, but what it does do is it enables people to come up with new ideas and try them out."

Public libraries have found productive partnerships with corporations (e.g., a partnership with Google), which can be paired with government funds, such as funds from the city. Partnerships with high-profile IT corporations are desirable partly for the reflected brand boost they can provide to the public libraries. The branch-by-branch rollout of programs in public libraries is also a key feature of these organizations, as are the class visits in schools and student tours of the library. One PLA stated that the library "entered into a partnership with Cisco about 3 or 4 years ago, and at that time they did not know where it was going to go. As a public library, [the library] (which has a history of partnering with many community organizations, such as school boards and city social services), knew it needed to partner with an organization that was technically savvy, as this was expertise that was lacking within the library. It started with conversations. As they talked, the idea of being able to teach library patrons advanced digital skills came up." Another PLA noted that the library "had a relationship with Google ([prior] to this training program) through the Wi-Fi hotspot lending initiative. Google funded this for 3 years and the [city] matched this funding. The Wi-Fi hotspot worked with [ISP]. . . . That way, people could borrow a hardware device and take it home for 6 months and get Wi-Fi [internet]

access at home [which they did not have before]. . . . This was [the library]'s first instance with working with Google. A relationship was established."

In community organizations, curriculum development is more mutual, wherein instructors participate in designing the programs. Community organizations have the capacity to develop programs and curriculums that are then forwarded to different potential funders. One community administrator said, "Each local club . . . across Canada, has an opportunity to apply for X amount of dollars . . . we were successful in getting it for 4 years. And then that's what got us the tech center built . . . and then . . . funding for staffing." Another community administrator shared, "we have a tech center here . . . it's basically a computer room that has about 23 computers . . . we have a program . . . that started about six years ago. So, part of that grant was to build this tech center, which would allow high school students specifically to work on their homework." Another noted that their community organization "has had a partnership with [an ISP] . . . now we have a different funder."

In research organizations, staff needs to be digitally literate and trained from the start. Program development in these contexts is described as more "top down," where curriculum is developed by a research and development team and then administered by instructors. Research organizations also develop programs and curriculums that are brought to potential funders. Interest in these programs must then be generated in other venues, such as academic conferences. A research administrator said, "We are looking for other funding . . . to [fund a] future skill center. Because we see the real link between what we're trying to do and what they're trying to accomplish."

Program Design

Responses about the pedagogical choices of these programs varied, perhaps depending on the knowledge of the respondent about the day-to-day workings of the program. Program designs included self-guided programs, experiential programs, group sessions, one-time sessions, multiple-session trainings, guest speakers, training for education, training for future technology professions, working in conjunction with community interests (school programs, libraries, youth clubs), training based on previous models, and implementing new models.

One theme was an expressed interest in standardization across programs, which some respondents thought was lacking in their own. One PLA stated, "I think that the whole idea of standardization would be great. . . . Almost like a, like a curriculum model of some kind, and I know that some programmers would balk at that, if they wouldn't want to be told how to deliver their program. . . . If we had more guidance about how to deliver a program, we might be able to get those programs out there faster, because we wouldn't have to do it from scratch every single time." Another respondent said, "I know that there's consistency issues across all programs . . . but we have individual branches who . . . [are] serving a population that's unique

in some way, which may be the case in terms [of] language, cultural background. But trying to keep things consistent is really important [and] I know we have trouble with that."

Challenges Encountered in Implementation

In public libraries, the largest challenge to offering digital literacy programs has been the need to train the existing staff. Most often, the problem is scheduling. The staff members are willing to participate, but there is no time to train them because they are always busy with their routine duties. One participant noted that unionized staff has mandated training, whereas staff outside the union must be self-motivated to participate in training. Participants also said that there has been some need for new hiring, funded through Google, for example. One PLA noted, "The role of the librarian is changing to become more digital savvy. Some staff members [e.g., longer-term staff] are in denial and are resistant to this change. There's a new LMS [learning management system] for staff to track their training."

Respondents from public libraries also commonly described a need to increase or repurpose library spaces for new hardware (e.g., makerspaces and VR technology). Administrators also worry that libraries are not considered contact points for knowledge about digital technology (a user might rather contact a computer store or helpline). In the community organizations, the biggest challenge is keeping and paying instructors, who are mostly graduate students. They need to provide incentives for these instructors to participate and to stay on to form long-term relationships within the organization.

Notably, nearly all the negative aspects of training that were mentioned, including harsh weather, were not fully under the direct control of the administrators and program instructors. Respondents also reported that programs struggle with low attendance. Sometimes program participants are unable to attend multiple training sessions because of other responsibilities or needs that conflicted with training. One PLA stated, "A major challenge working with youth is that they are often obligated to balance a number of responsibilities, such as working part-time jobs, caring for younger siblings, attending school and participating in extracurricular activities." A community administrator shared, "It's not necessarily about the program, sometimes it is. Sometimes it's like they weren't interested or they didn't get it. Spring is hard for us. The kids finally get to go outside for recess. Maybe it's a hard choice they have to make." A PLA said:

> It's a significant commitment because these are multiweek courses, lots of library training is one-off, you know, most of our user education is one-off, there are 2-hour courses, you come in, you learn some stuff, and if you never do another course, that's that, where the Cisco Networking Academy are multiweek courses or multihour courses. . . . Libraries don't generally do serial courses like that, so . . . I can see that being a challenge in, you know, staffing it and redirecting their workforce to be able to support it, I mean, we are

> fortunate in that we got new positions from the city when we joined on the Cisco Networking Academy that we were able to just completely direct this initiative, so they aren't doing anything else other than supporting this.

In summary, public libraries are concerned with participant numbers and retention and are challenged to establish consistency across branches. Meanwhile, these branches must also attend to the unique needs of their users, to account for cultural and language differences. Promotion is a challenge, particularly to marginalized people, and there is a concern that training programs absorb resources that could be allocated to other library functions. Participants noted that the public library may not be considered a contact point for digital technology. A further challenge is training clients in technology without understanding how it works, such as algorithms.

Similar to library administrators, those in community organizations struggle with timing their programming (afterschool programs may work for younger students, but older youth have other responsibilities). These programs are also significantly affected by the "life of a grant" and thus end when grant funding stops. One community administrator noted, "We need this extra funding and we've been able to hire staff dedicated to just doing this work. . . . It lets us focus, it lets us not have to stop doing something else." Another community administrator said, "Community-based programs such as after-school spaces can easily adapt to the continuously changing digital landscape, but often experience capacity issues, such as limited technology or expertise, [which] interferes with access to program[s]."

The research organizations are challenged by a need to employ staff members who are highly digitally literate and trained from the start. Research organizations seem to require a high degree of organization and governance to develop curriculum and implement it through instructors. They also require a good deal of collaboration between instructors to keep this curriculum consistent. One respondent noted that challenges include "finding qualified people to do it. Finding people who are going to be consistently around. Because part of it is relationship building especially when it comes for delivering programs for anybody, any population but particularly for youth. Because part of the reason they come is because they've built a relationship with the person who's delivering the programs. And if that's continuously changing, they drop off. Having access to facilities and space that's appropriate for these kinds of things can be a challenge. Sometimes as much as community partnerships are important."

Another research administrator stated, "It has to be the right people who can reach youth and provide the right types of incentives and the right approach at engaging people to come and do their homework. Like that's a tough sell for a high school group." One stated, "The reason that we've had trainers from the outside come and actually deliver the program is because within we had a hard time finding people who are qualified to do this. Because they have certain criteria for—so they have to be their student or graduate or something within like

computer sciences or whatever. And that can be difficult to find when people are not wanting to work for certain wage, for example." Another RA noted, "The instructor turnover rate was higher than originally anticipated. Some sites have not experienced turnover, which has allowed these instructors to build stronger relationships with participants and the community in general. However, some site instructors have moved on to pursue full-time roles that align with their backgrounds, or shifts in their post-secondary schedules have prevented them from continuing with the pilot."

Limitations

Administrators in all types of organizations tended to describe their programs' purpose and structure in markedly idealistic, sometimes abstract ways. This may have occurred because interviewees might be removed from the program's daily operations and thus less able to speak on concrete outcomes than instructors. They may describe programs in ways that would speak to broad audiences of interested parties and stakeholders (e.g., city councils, the press). They may also simply lack evidence to talk about the program in more specific terms. We will discuss this question of evidence further in part 2 of this article series, as a matter of administrators' assessment of their programs' successes.

Conclusion

These interviews with administrators addressed our original research question: What organizational factors (e.g., administrative factors) foster or challenge digital literacy training initiatives offered to local communities? The factors that foster digital literacy training include funding from corporate or other external sources and community interest in programs. Corporate partnerships might be noted as paradoxical, given the expressed desire to fight against corporate monopolies on information and technology. Challenges arise from lack of resources, including staff time, and lack of staff expertise, in addition to seasonal challenges. Community organizations were challenged by a lack of continuity of instructors, which hindered relationship building with program attendees.

The voices of the administrators heard here shed some light on digital literacy training in Canada, particularly in the narrow ways in which digital literacy is being interpreted. Ethical information engagement, for example, was not a topic of instruction in these programs, and a more explicit and robust definition might benefit their goals. The administrators' perspectives must be balanced with the voices of program instructors and program participants. In addition, the national survey to be conducted in phase 2 of this study will test these findings across the country and provide a more thorough understanding of the investments being made in

digital literacy training and the outcomes of those investments for individual Canadians, as well as their implications for the country as a whole.

Appendix

Interview Questions

What kinds of digital literacy (skills) training programs does your organization provide?
Why does your organization provide this training?

- Is it part of your organization's mandate or mission/vision statement?
- Does your organization's mission statement mention digital literacy? To what extent?
- Where can I find a copy of your organization's mission statement?

How does your organization go about deciding which type of training to offer?
How does your organization promote this training to the public?

- Who is responsible for this activity?
- Comment on the success of each promotion.
- How do you evaluate the effectiveness of the promotion?

Identify the main or most popular type of digital literacy (skills) training your organization provides.
For EACH one of these types of training, answer the following question:

Purpose

What is the purpose of providing this specific type of training?

- Why is your organization interested in this type of training?
- What does your organization hope to gain from offering this type of training?

History

How did this type of training emerge (come to be)?

- What is the history of this training? Describe how the delivery of this type of training came to be?
- When or how long ago was this training first established?
- How has this training emerged/changed over the years?

Impact on the Organization

How has the delivery of this type of training impacted your organization?

- How has your organization reacted to the delivery of this training?
- Are people in the organization pleased? Worried? Concerned? Explain.

What do you envision the future impact of the delivery of this type of training will be on your organization?

Impact on the Participant's Role

How has the delivery of this type of training impacted your daily role in your organization?

- Job motivation?
- Job satisfaction?
- Organizational loyalty?
- Intrinsic motivation?

What do you envision the future impact of this training will be on your daily role?

Impact on the Public

How has the public reacted to the delivery of this type of training?

What do you see as the outcomes of this training in terms of digital literacy skills and/or changes in attitudes towards digital literacy among those who participate in the training?

- Psychological outcomes?
- Behavioral outcomes?
- Benefit outcomes?

What do you envision the future impact of this type of training will be on the public (your constituents)?

Activities in the Setup and Delivery of This Type of Training

If another local community organization or public library called you up and asked you for advice on what are things one needs to do, or have in place, to deliver this type of training . . . what would you tell them?

- What worked well?
- What aspects of the training were especially useful (e.g., specific topic elements, timing, instructional method, pedagogic techniques)?
- What things could be improved and/or things that someone should be aware of in order to prevent a poorly designed/implemented training program from happening?
  - Are there ways in which the training might be improved?

If you had to plan a project or schedule for the design and launch of this type of training, what would the tasks or activities of that project or schedule be?

- What are the tasks involved in implementing this type of training?
- Describe EACH of those activities in sufficient detail to so I can visualize all the things that are involved in that activity.
  - What is the motivation (driving force) behind this activity? What is the objective of this activity?
  - What are the actions (subtasks) that comprise this activity? What are the goals of these actions (sub-tasks)?

- Who are the people involved in this activity? What do these people do? How is work divided among these people to get the activity done?
- What tools are used to conduct that activity?
- Are there any rules (e.g., standards, best practices, laws) that shape this activity?
- What are the outcomes of the activity?
- In regards to activity _____ what worked well?
- Give an example where things worked well.
  - Tell me a story, or describe an event or happening where . . .
- In regard to activity _____ what did not work well?
- Give an example where things did not work well.
  - Tell me a story, or describe an event or happening where . . .
- What challenges did or do you face carrying out this activity?
  - technical challenges? financial challenges?, legal challenges? ethical challenges?
- What advice would you give others based on your experience with this activity?
  - If you had to do it all over again, what would you do differently? Lessons learned?

Other Things to Ask

- In your opinion, what constitutes a successful digital literacy training program?
  - What are they key characteristics of a training opportunity that make it good (effective)?
- Are there any official or commonly accepted guidelines you use to design and deliver your digital literacy training programs?
  - Do you benchmark your training programs? Explain.
  - What performance measurements do you collect?
  - How do you utilize these performance measures?
    - Reporting? Redesign of the training?
- Comment on the governance structure/project management approach used in design and implementation of the digital literacy training programs your organization provides.
  - What works well?
  - What needs improvement?
  - What challenges exist? How can they be overcome?
  - What unique challenges exist for a training initiative involving multiple partner organizations . . . are there special tensions (e.g., different objectives among the partners) that need to be considered?

Last Question

Is there anything I have forgotten to ask or comments you want to include that we haven't covered yet in this interview?

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