Digital Literacy Initiatives in Canada: Exploring Successes from Multiple Perspectives

Heidi Julien[1] and Brian Detlor[2]

[1] University at Buffalo, 530 Baldy Hall, Buffalo NY 14260, USA
[2] McMaster University, 1280 Main Street West, Hamilton ON L8S 4M4, Canada
heidijul@buffalo.edu

Abstract. This poster presents initial results of a study exploring digital literacy training provided by public libraries and other community organizations in Canada. The goal of the study is to identify best practices for these kinds of training opportunities, and to prepare a toolkit that public libraries and community organizations can use to evaluate these initiatives. In addition, the study seeks to contribute to theoretical understanding of digital literacy and digital literacy instruction. The study, being undertaken by scholars across multiple disciplines, and supported by partners in the public library sector and other community organizations, will build knowledge and understanding from interdisciplinary and inter-institutional perspectives. Methods include case studies in public libraries and other community organizations, as well as a national survey of public libraries. The poster presents initial results of case studies of digital training initiatives offered by public libraries and other community organizations in one medium-sized and in one large Canadian city.

Keywords: Digital Literacy, Public Libraries, Evaluation.

1   Introduction

This study investigates the ways in which digital literacy skills training offered by public libraries and other community organizations promotes digital literacy within communities in Canada. The goal of the study is to identify best practices for these kinds of training opportunities, and to prepare a toolkit that public libraries and community organizations can use to evaluate these initiatives. In addition, the study seeks to contribute to theoretical understanding of digital literacy and digital literacy instruction.

The study explores three areas of investigation: i) organizational factors that foster or challenge digital literacy initiatives led by public libraries and other community organizations; ii) 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 iii) performance measures that effectively evaluate digital literacy initiatives led by public libraries and community organizations. The study, being undertaken by scholars across multiple disciplines, and supported by partners in the public library sector and other community organizations, will build knowledge and understanding from interdisciplinary and inter-institutional

perspectives (i.e., library and information studies, information systems, social science, and business) because digital literacy is both important and complex, transcending the capacity of any one scholar, institution, or discipline.

Digital literacy is the set of skills, knowledge and attitudes required to access, create, use, and evaluate digital information effectively, efficiently, and ethically [1]. It is the ability of people to locate, organize, understand, evaluate and create information using digital technology [2,3]. Digital literacy comprises two sets of broad skills: i) skills to operate and utilize digital technologies such as computers, tablets and smart phones; and ii) skills to access, create, use, and evaluate digital information [4]. As the world becomes more digital, it is essential that individuals become more digitally literate to fully participate and thrive in today's digital economy and use the Internet safely and effectively in daily life. Being digitally literate leads to more positive health outcomes (as people are more able to access high quality health information online), better access to government services, participative governance, workforce development (improved job performance, employment), and bridging of the digital divide [1]. Canadian public libraries play an important role in digital literacy promotion in the communities they serve. These institutions have developed and delivered digital literacy programs to all Canadians, (including under-represented groups), and have been providing safe, secure and effective Internet and computer use since the advent of the World Wide Web [5,6]. Examples of such community-based programs offered by Canadian public libraries include training in basic computer skills, email use, mobile device use, software operation (e.g., Word for Windows and Google), Web resource use, access to library and government electronic resources, Internet safety, digital privacy, social media use, job search skills, business research skills, and computer programming. Providing these programs is now a core public library service [7,8], as well as a service offered by a range of other community-based organizations, such as the YWCA, local industry education councils, community colleges, municipal information and community service departments, boards of education, city social planning and research councils, and small business enterprise centres.

There is recent evidence that such programs delivered by public libraries in Canada promote digital literacy, increase digital comfort, and encourage the adoption and use of digital technologies [9]. However, there is a need for comprehensive performance measures that assess the effectiveness of digital literacy initiatives. Current performance measurement approaches for libraries, such as the Public Library Administration's Study Outcomes Toolkit and the Edge Toolkit developed by a coalition of 12 US library and government associations, are useful, but do not provide a comprehensive, research-based approach to evaluating the effectiveness of digital literacy programs. Complimentary standardized performance measures (i.e., input, output and outcome measures) for digital literacy initiatives that provide a common language and a common set of evaluation tools are needed as part of a National Digital Literacy Strategy for Canada [8]. Standardized digital literacy performance measures will allow a library or other community-based organization to compare the results of its digital literacy initiatives with others at regional, provincial and national levels. These measures should be both quantitative and qualitative in nature, and assess both organizational factors and user considerations.

Digital literacy in Canada is lacking [10]. Although digital literacy is recognized as a key component of Canada's digital talent strategy [11] literacy training in K-12 and post-secondary education, nor in on-the-job training/upskilling [12]. However, a national digital literacy strategy is on the federal government's radar and work towards a national digital literacy strategy is in progress [13]. Digital literacy is key to an inclusive and innovation-driven knowledge economy; digital literacy provides a guarantee that Canadians have the skills to adapt, engage, innovate, and benefit from information technologies [14]. A recent report by Canada's Information and Communications Technology Council describes how certain demographic groups, namely women, youth, immigrants, Indigenous persons and persons with disabilities, could particularly benefit from digital skills training [11]. Importantly, public libraries and other community-based organizations play a key role in the promotion of digital literacy skills in Canada. Public libraries, in particular, have embraced an evolving role as digital literacy and inclusion centres and have become important community hubs; understanding and sharing local evaluation and research findings on digital literacy initiatives led by public libraries is an excellent way to leverage best evidence-based practice in this area [7]. According to a report by the Pew Research Centre, the public wants libraries to teach digital literacy; library efforts can help the most vulnerable groups in this regard [15]. Public libraries and other community-based organizations should offer programs to teach people, including children and senior citizens, how to use digital tools such as computers, smartphones and apps, and how to protect their privacy and security online. There is a strong connection between library support of digital literacy skills and employment. Contributions to the economic health of communities and the economic success of individuals are major reasons why public libraries should teach digital skills [15,16].

2 Research Questions

The focus of this study is to explore how to provide effective digital literacy initiatives led by public libraries and other community-based organizations in Canada, how to promote those initiatives effectively, and how to evaluate those initiatives. The study is investigating the following high-level research question: How can public libraries and other community-based organizations in Canada best deliver and evaluate the digital literacy initiatives they provide to the communities they serve? Secondary research questions include the following:

• What organizational factors foster or challenge digital literacy initiatives led by public libraries and other community organizations in Canada?

• What user considerations concerning these digital literacy initiatives influence community member uptake, lead to gains in digital literacy skills development, and foster greater digital literacy appreciation among community members?

• What performance measures (i.e., input, output and outcome measures) should be used to effectively evaluate these digital literacy initiatives?

3 Methodology

The study has started with a series of case studies of digital literacy activities currently underway at two public libraries and two community organizations in one medium-sized, and one large Canadian city. The poster will report preliminary results from these case studies. These will be followed by case studies in other Canadian cities, and a national survey of public libraries across Canada. Together, the survey and case studies will lead to greater understanding of the organizational factors and user considerations affecting digital literacy initiatives offered by public libraries and by other community organizations, and also greater understanding of the evaluation mechanisms (performance measures) used and needed to assess those initiatives.

For each case study, data collection includes one-on-one open-ended interviews with five to eight staff responsible for the delivery and evaluation of digital literacy initiatives offered through their organization. Interviews ae also being held with 10 to 15 clients who participate in these digital literacy initiatives. Interviews are being audio-recorded and transcribed. In addition, documents pertaining to digital literacy initiatives at the case study sites are being collected and analyzed. The researchers are also conducing participant observations of digital literacy programs delivered at each case study site.

The goal of the survey for public libraries is to: i) capture a national picture of the variety and range of digital literacy initiatives underway at Canadian public libraries; ii) understand the organizational factors that foster or challenge digital literacy initiatives; iii) gain insight into user considerations (from an internal stakeholder's point of view) that impact community member uptake, digital literacy skills development, and digital literacy appreciation; and iv) ascertain the extent and effectiveness of performance measures currently used by libraries to evaluate digital literacy initiatives.

Constructivist grounded theory [17] is serving as the underlying methodological approach. Grounded theory data analysis procedures, such as the flip-flop technique, use of constant comparisons, and the coding paradigm tool [18,19] are being applied to identify categories and relationships between categories in the data, and identify a key category around which all other categories relate. The goal is to produce central process-oriented storylines that answer the study's research questions. Conceptual frameworks guiding the study design, data collection and initial data analysis include Activity Theory [20,21,22], which is being used as a conceptual framework to collect and analyze data concerning organizational factors affecting the implementation and rollout of digital literacy initiatives. Here, digital literacy initiatives are being treated as specific activities, and Activity Theory is being used to explore congruencies and contradictions surrounding these activities. In addition, Detlor *et al*.'s model of Information Literacy Instruction Factors Affecting Student Learning Outcomes [23] and Serenko *et al*.'s model of Student Learning Outcomes of Information Literacy Instruction [24] are being used to collect and analyze data concerning user considerations that influence i) community member uptake, ii) lead to gains in digital literacy skills development, and iii) foster greater digital literacy appreciation among community members. Both models are based on theoretical contributions from the information literacy and educational

assessment literatures [25,26,27] and are easily adaptable to a digital literacy environment. Specifically, the models are being adapted to recognize the three main arenas of digital literacy instruction assessment (the learning environment, program components, and student demographics), as well as the key learning outcomes to consider (psychological, behavioral, and benefit outcomes). Kaplan & Norton's Balance Scorecard method [28] will be used to identify and understand Key Performance Indicators involved in digital literacy initiatives, and to explore various input, output and outcome performance measures that could be used to assess the extent to which the strategic goals and objectives of the digital literacy initiatives are being met.

Once results from the nation-wide survey and case studies are finalized, findings will be triangulated to produce a public library digital literacy initiative evaluation toolkit. This toolkit will incorporate performance measures that assess organizational factors and user considerations important to the successful delivery of digital literacy initiatives in public libraries and other community organizations. The goal is to produce a standardized evaluation toolkit to effectively measure and assess these initiatives. This could include tools that measure user digital literacy appreciation, user digital literacy skills development, and organizational factors that affect the implementation and delivery of digital literacy initiatives, among others. Existing scales, such as those available through the Study Outcomes toolkit, the Edge toolkit, the Programme for the International Assessment of Adult Competencies' (PIAAC) survey of adult skills, Canada's Association of Information Technology Professionals' (CIPS) International Computer Driving License, and the Preparing our Youth for an Inclusive and Sustainable World's (PISA) global competence questionnaire will serve as inputs into the development of the toolkit. Three public libraries across Canada will then be selected to test the efficacy of the toolkit based on the feedback received from the national survey.

4   Results

The poster will present initial results of case studies of digital training initiatives offered by public libraries and other community organizations in one medium-sized and in one large Canadian city. Data collection is well underway, so preliminary results will be available for presentation at the conference.

5   Connection to Conference Theme of Sustainability

All efforts towards sustainability are dependent upon access to information, which is only possible when people are digitally literate. Digital literacy is a core precursor for civic engagement in all arenas, and for all efforts working towards sustainability.

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