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Crowing About Confidence: Technological Self-Efficacy in Academic Libraries

Joshua Chalifour
Digital Scholarship Librarian
Concordia University Library
Concordia University
joshua.chalifour@concordia.ca

Dianne Cmor
Associate University Librarian, Teaching & Learning
Concordia University Library
Concordia University
dianne.cmor@concordia.ca

Abstract

Technological change is a constant in academic libraries and how we assess our ability to learn and use new technologies affects the services that we are able to provide. This article offers an introduction to the concept of technological self-efficacy and its potential relevance to library workers. It also provides a domain-specific measurement tool and ideas on how to build technological self-efficacy in library staff. We also talk about crows, because…the crow knows!

Keywords

Self-efficacy, technology, academic libraries, staff development

Introduction

Researchers found that New Caledonian crows, after using tools, behaved more optimistically. The 2019 study showed the crows experienced positive affect (enjoyment) in making and using tools, motivating them to continue these practices

(McCoy et al., p. 2739). This may seem like an odd opening to an article about academic libraries, but give us a chance…

Keeping in mind the behaviour of these crows, let us shift to the context of library personnel. New technologies (tools) often appear as insurmountable challenges to people reluctant to adopt them, leaving many feeling pessimistic about technology or their ability to use it. However, in an academic library, we must engage with the technologies patrons use or would like to use to gain knowledge or undertake research in ways that were not previously possible. As library workers, how can we improve our outlook and be ready to face new technologies? How do we underscore that digital transformation and technological change go part-and-parcel with our work and feel positive, rather than reluctant, about engaging with new tools? Let us consider this through the lens of technological self-efficacy.

We each bring particular skills and experiences to our work. We also have varying levels of confidence in our capabilities, which shape how we face new challenges. It seems worthwhile then to explore how we perceive our technological abilities. Recognizing the power of our own perceptions of our technological competencies can inform how we address the changes that digital tools and services bring to academic environments. Like many institutions of higher education, Concordia University is looking for ways to support the growth of digital capabilities across its community, and the Library specifically has been exploring the use of concepts of technological self-efficacy as a way to better understand and support library staff.

Situating Technological Self-Efficacy

Bandura (1999) argues that we want to satisfy ourselves through achieving our goals and that our motivation for this comes “from the self-evaluation that is made conditional on their fulfillment” (p. 28). If our goals are to help patrons research, acquire knowledge and create knowledge in new ways, then we will self-satisfy upon gaining the confidence to explore and use the new technologies those patrons require.

Our perceived self-efficacy is based on the degree to which we believe in our capabilities. This perception in turn colours how we react to challenges. Bandura (1999) explains:

> When faced with obstacles, setbacks and failures, those who doubt their capabilities slacken their efforts, give up, or settle for mediocre solutions. By contrast, those who have a strong belief in their capabilities redouble their efforts and try to figure out better ways to master the challenges. They remain resilient to the demoralizing effects of adversity. (p. 28)

Am I capable of achieving certain outcomes? Self-reflective questioning is central to individual attitudes about working with new technologies. If people believe that they lack the necessary capabilities, they may not be motivated to try to accomplish new goals. Conversely, it is probably not useful to be exceedingly confident without any basis or experience.

In order to examine and improve the confidence library workers have in their technological capabilities, we can inquire about their technological self-efficacy. Researchers have measured technological self-efficacy in diverse fields, including nursing (Roney et al., 2017), telecommunication (McDonald & Siegall, 1992) and education (Al-Harthi, 2017; Doğru, 2014; Joo et al. 2000). Some research investigates self-efficacy in LIS students (Malliari et al., 2012), but the focus is on methods for IT training. In each case where self-efficacy is measured, the testing instrument is tailored to the domain of study. To get a better understanding of technological self-efficacy in an academic library, we developed an instrument that we adapted to the academic library context (that we share later in this article).

Technological self-efficacy is important across all library positions, not just for those that are specifically identified as “technological” in nature. Regardless of our individual titles, much of our work involves new technologies. In a landscape where digital tools are becoming increasingly intertwined with scholarship, permeating its exploration, assessment and organization, library personnel must become acquainted and comfortable with these technologies in their everyday work. This does not mean that we all must develop deep expertise in every new technology that researchers and students begin to use. Instead, it means that we ought to have a level of confidence in our abilities to dive in, explore and use these technologies to a degree appropriate for the situation. We will lose our motivation to successfully help patrons if we lack the confidence to do this.

To repeat, we do not need to be proficient in everything. What we must strive for, from an overall library perspective, is to support library personnel in building their capabilities and becoming aware that they have the competencies needed to approach new technologies. Citing evidence from previous studies, McDonald and Siegall (1992) state that self-efficacy is a better predictor of behaviour than past performance (p. 3). Library personnel with greater technological self-efficacy are more likely to possess attitudes that will enable the successful learning of new tools; they are also likely to be more optimistic and excited about learning and using such tools.

Encouraging a Culture of Technological Self-Efficacy

To engender a library culture that promotes and reinforces technological self-efficacy, we must provide library workers with opportunities to gain experience with technologies and help them build their confidence. For example, many libraries have embarked on 23 Things programs, in which participants explore 23 technologies over a number of weeks. Though not designed as a deep learning experience, it gives library personnel a chance to develop a variety of relevant new skills and awareness in areas that they may not otherwise have had much opportunity to explore.

Stephens (2012) looked at data gathered from Australian and American libraries that ran 23 Things programs. Questions were asked about participants’ confidence and comfort levels with emerging technologies as well as whether participants continued to explore such technologies after finishing the 23 Things program. The responses showed participants’ confidence increased after the program and that they continued to

explore emerging technologies (Stephens, 2012, p. 8). While these conclusions come from programs that focused on “Web 2.0” technologies, Stephens more recently looked at a 23 Things program targeting mobile technologies. In that 2014 study, Stephens concluded that staff development personnel “should consider adapting the model as an inclusive, hands-on learning opportunity to promote staff use of mobile devices and technologies” (p. 591).

The 23 Things program is only one approach—it is possible to encourage a culture of technological self-efficacy in a variety of ways. In fact, it is probably a good idea to engage people with emerging technologies through different vectors. This can include ensuring all library staff are given the opportunity to train on new technologies being adopted or implemented. Regardless of whether they are expected to regularly use the new technology, library workers can all gain familiarity and experience related to the range of help patrons may require. At the Concordia University Library, we implemented a 23 Things for Digital Knowledge program and also employ general methods to increase awareness of our digital/technological contexts, such as brown bag lunches with speakers or videos, encouraging staff to attend university-wide talks on technology-related topics, etc. We also plan to increase training for all on a variety of technologies. Exposure is an important first step in cultivating awareness and interest and can hopefully inspire staff to optimistically take on new technologies as they become increasingly ubiquitous and important in library contexts.

Sample Technological Self-Efficacy Measurement Tool

To check the pulse of your library’s technological self-efficacy, you can survey personnel about how they perceive their capacity to use technologies or perform technology-based tasks in the library. We experimented with the following short set of questions based on Bandura’s (2006) techniques.

> A number of tasks are described below. Using the following scale, please rate how certain you are that you can successfully complete each task.
>
> Rate from 0-10 using the scale given.
>
> 0 1 2 3 4 5 6 7 8 9 10
> Certain cannot do — Moderately certain can do — Highly certain can do
>
> — Collaborate on a shared document on an internal staff wiki
>
> — Keep track of websites and documents on a topic so I can share them with my team
>
> — Learn how to use a new app to assist library users
>
> — Set up and run an online video-conference meeting
>
> — Create a simple video demonstrating the self-checkout machines

- Describe one way that artificial intelligence could be used in my work area
- Learn how to use a new infographics tool to create a sign/poster
- Use an online poll to do a quick survey at a service desk or in a workshop
- Describe one way that cloud computing can help us work with other libraries
- Learn how to use a new data visualization tool to create a simple interactive map
- Change settings on a website/app to limit what data is collected about me
- Use an online learning tool to improve my writing skills

Some of these tasks refer to specific technologies used within our working context while others are more generic but refer to technologies that might be encountered or are likely to become a more commonplace part of our educational and research environment. It is not important to list every technology possible; rather, this was a well-considered list that spanned areas applicable to our situation. Bandura (2006) argues that it is less useful to use a generalized self-efficacy scale and encourages the creation of a measurement tool specific to the "domain of functioning" that we are concerned with measuring (pp. 307–308).

Because we want to find out more about how people perceive their capabilities, we have expressed each of these tasks in the present tense. This prompts people to reflect on what they believe they can do—their current perceived abilities. A word of caution: we recommend that this tool be used for self-reflection; it should not be used as an assessment tool as this would no doubt raise staff anxiety. That said, it can be used to collect *anonymous* responses that, when aggregated and analyzed, can reveal areas for library staff learning or training. We can also compare such data either over time, to other libraries, or to other sectors. Finally, each library may also want to customize the tool to include technological tasks that make sense in local contexts or to specific staff groups.

Will helping library personnel reflect on their perceived capabilities be a useful undertaking? Will providing opportunities to learn about, think about and play with new technologies motivate library staff as it does the New Caledonian crows? Will their growing competencies lead to more enjoyment and a more optimistic outlook on new tools and technologies? We hope so.

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