

**Digital Empowerment: Exploring How Fully Online Learning Communities Support
Digital Competency Development**

by

Jesslyn Wilkinson

A Project submitted to the School of Graduate and Postdoctoral Studies in partial fulfillment of
the requirements for the degree of

Master of Education

Faculty of Education

Ontario Tech University

Oshawa, Ontario, Canada

August 2022

Project Review Information

Submitted by: Jesslyn Wilkinson

Master of Education in Faculty of Education

Project/Major Paper title: Digital Empowerment: Exploring How Fully Online Learning Communities Support Digital Competency Development

The Project/Major Paper was approved on August 14, 2022 by the following review committee:

Review Committee:

Research Supervisor	Roland Van Oostveen
Second Reader	Wendy Barber

The above review committee determined that the Project is acceptable in form and content and that a satisfactory knowledge of the field was covered by the work submitted. A copy of the Certificate of Approval is available from the School of Graduate and Postdoctoral Studies.

Abstract

This research investigates the digital competence and experiences of faculty participating in a fully online professional learning initiative, Ontario Extend. This learning initiative is described as a form of Fully Online Learning Community (FOLC), a refinement of the Community of Inquiry (CoI) model. Six college faculty who had completed Ontario Extend were recruited, and completed the Digital Competency Profiler (DCP) (Hunter et al., 2018). From this, an aggregated profile was developed of the digital competence reported across technical, social, informational and epistemological orders. Results are discussed. In a follow up focus group, faculty reported perceptions that the learning initiative boosted their confidence, gave them frameworks to use to support decisionmaking, increased their iterative behaviours, and affected their pedagogical intentions. Further implications for research are discussed.

Keywords: fully online learning community, digital competence, professional learning

Author's Declaration

I hereby declare that this project consists of original work which I have authored. This is a true copy of the project, including any required final revisions, as accepted by my examiners.

I authorize Ontario Tech University to lend this thesis to other institutions or individuals for the purpose of scholarly research. I further authorize Ontario Tech University to reproduce this project by photocopying or by other means, in total or in part, at the request of other institutions or individuals for the purpose of scholarly research. I understand that my project will be made electronically available to the public.

The research work in this project was performed in compliance with the regulations of the Research Ethics Board under REB Certificate number 16748.

Jesslyn Wilkinson

Acknowledgements

I would like to acknowledge the support and mentorship of my supervisor, Roland vanOostveen throughout this project. Your feedback and understanding has been invaluable. I would also like to thank my employer, Conestoga College for supporting my interest in taking on my Masters, and Melanie Sullivan in particular for encouraging the initial seeds of interest in doing this. My deep thanks to Kathryn Brillinger, who knew exactly what it was like to attempt this with young children at home. To my colleagues Nancy and Kim, without your encouragement and related experiences I would have sunk. I cannot finish any acknowledgement without recognizing that I was only able to undertake this journey because of the support and encouragement of my partner, Jessie Rocha. He is my rock, a fantastic father, a wonderful cook, and now that this is done, I swear, by the moon and the stars in the sky, I'll be there... to help with the dishes.

Statement of Contributions

I hereby certify that I am the sole author of this work and that no part of this work has been published or submitted for publication. I have used standard referencing practices to acknowledge ideas, research techniques, or other materials that belong to others. Furthermore, I hereby certify that I am the sole source of the creative works and/or inventive knowledge described in this document.

Digital Empowerment: Exploring How Fully Online Learning Communities Support Digital Competency Development

	i
Project Review Information	i
Review Committee:	i
Abstract	ii
Author’s Declaration	iii
Acknowledgements	iv
Statement of Contributions	v
List of Figures	viii
List of Abbreviations	ix
Chapter 1: Introduction	1
Chapter 2: Literature Review	6
2.1 Defining Digital Competence and Professional Learning	6
2.2 An Overview of Ontario Extend	8
2.3 Social Constructivism and Community-Based Learning Models	11
2.4 The Fully Online Learning Community (FOLC) Model	16
2.5 Measuring DC with The Digital Competency Profiler (DCP)	21
Chapter 3: Research Intent	23
3.1 Research Questions	23
Chapter 4: Methodology	24
4.1 Data Collection	24
4.2 Research Limitations	25
4.3 Participant Demographics	25
Chapter 5: Findings and Discussion	26
5.1 The Digital Competency Profiler (DCP)	26
5.1.1 Confidence and Frequency	27
5.1.2 Competence Index	28
5.2 Focus Group Findings	31
5.2.1 Validated Identities as Technologically Competent Educators	31
5.2.2 Key Skills in Support of DC	37
5.2.3 Connection with Community	44

Chapter 6: Conclusions	50
References	53

List of Figures

Figure 1: Participant feedback from the Ontario Extend exit survey.....	10
Figure 2: The Fully Online Learning Community Model.....	19
Figure 3: Averaged DCP Profile of Participants	26
Figure 4: The DCP Relative Competency Index for EE participants.....	29

List of Abbreviations

CBPL	Community Based Professional Learning
DC	Digital Competence
DCP	Digital Competency Profiler
EE	Empowered Educator
FOLC	Fully Online Learning Community

Chapter 1: Introduction

Prior to the pandemic, there were indications that many higher education faculty perceived that their digital competence was not sufficient to meet the demands of tech-enabled or online teaching and learning (Racine et al., 2013). Despite this, or perhaps in light of this, faculty remained motivated to partake in training and development of digital skills, citing a sincere interest in benefitting student learning as their motivation (Martin et al., 2020). Since the pivot in 2020, demand and participation in professional learning for digital skills has increased. The Canadian Pulse Project (Johnson, 2020) identified key shifts in Ontario faculty's perceptions and perspectives toward digital technologies, which the report speculates may have a "profound and lasting impact" on higher education in Ontario. Faculty also indicated they felt greater willingness and optimism to seek learning opportunities on a variety of topics. Since a strong positive correlation exists between the development of digital competence and constructivist teaching practices, efforts to support this renewed interest in professional learning are well worth the investment (Schmid et al., 2014). In the post COVID-19 higher education sphere, educators will likely willingly seek professional learning opportunities to incorporate more digital tools into their practice, and this is likely to have great impact on the pedagogical reality of higher education.

Yet, there are gaps in the availability of effective and evidence-based professional learning activities designed for higher education faculty to enhance digital skills. The 2017 report of the Canadian Online Learning Survey revealed that nearly two-thirds of Ontario's higher education institutions cited a lack of suitable training opportunities available to support faculty in developing their digital competence (Bates, 2018). This lack is cited as a likely significant factor limiting the expansion of online teaching and learning opportunities in Ontario, and added strain

to the pivot to emergency remote teaching and learning (Johnson, 2019; Johnson, 2020). Of those learning opportunities available, many are not always effectively designed to support digital competence development. Conventionally provided learning activities like workshops and conferences often fail to lead to meaningful changes in either teaching practices or digital skills (Fullan, 2006). They tend to take a transmission-oriented approach to learning and often decontextualize skills from teaching and learning activities (Kirkwood & Price, 2014). In addition, numerous global and national organizations have called for changes to how professional learning is designed and taught, to better align with collaborative, active co-constructed and discursive learning experiences (vanOostveen et al., 2016).

In what might be viewed as a complementary problem, technology-enabled teaching practices in higher education have also been criticized as “techno-centric,” focussed on the features and functionalities of apps and devices rather than their pedagogical application (Kirkwood & Price, 2014). A tool-centric approach can be problematic for several reasons. While a baseline awareness of the capacity of different tools may help educators make judicious pedagogical decisions about when and how to use them, simply enhancing access to or awareness of technologies typically fails to effect meaningful change in learning or teaching (vanOostveen et al., 2011). Tool-centric training also may not incorporate rich inquiry-based approaches, which are shown to support faculty in developing confidence and flexibility in using technologies (Lin, et al., 2020; Vasilieva, 2018). Training might also be driven by organizational goals, rather than by grassroots challenges within faculties' daily teaching practice (Belt & Lowenthal, 2020). Without a grounding in personal relevance or specific contextualization into courses or disciplines, training activities are unlikely to lead to meaningful change in digital competence over the long term. There seems to be a need, then, for professional learning

opportunities that are relevant and evidence-informed, and which embed a variety of digital competencies in teaching applications. Some contend that effective professional learning for educators should focus on concrete and explicit development of content knowledge, pedagogies and instructional techniques (Bragg et al., 2021). However, this type of professional learning may not situate or contextualize the learning enough for it to have personal relevance for many faculty. Instead, professional learning might take the form of flexible, problem-oriented activities where individuals can identify unique problems within their practice, and iterate solutions through trial-and-error and seeking advice from peers (vanOostveen et al., 2019).

Recent research points towards the value that community-based models of learning may bring to developing digital competence among faculty (Belt & Lowenthal, 2020; Golden, 2016; Murray-Johnson, 2014; Nolin, 2014). There have been various iterations of community-based models, including communities of practice (CoPs), professional learning networks (PLNs), professional learning communities (PLCS), and communities of inquiry (CoI) (Senge, 2006). While academic research might often use these different terms interchangeably (Blankenship & Ruona, 2007), each of these models is quite general and broad. Generally, community-based learning aims to unite learners of varied skill and knowledge levels in spaces where they can share experiences and advice, learning from each other and developing their practice within a shared domain (Lave & Wenger, 1991). Wenger et al. (2011) continue to work to define and elaborate these types of learning spaces, contending that CoPs, CoIs, PLCs and PLNs are all taken to be part of a “social fabric of learning”. Community-based learning models are uniquely well suited to online and virtual spaces, and are often used in professional learning contexts (Murray-Johnson, 2014; Steinert et al., 2016). However, the models tend to treat digital spaces and tools as separate from the learning processes and experiences (Garrison, 2011). One

community-based learning model in particular, the Fully Online Learning Community (FOLC) model, seeks to fully conceptualize learning communities as integrated digital learning experiences (vanOostveen et al., 2016). This model will be explored in greater depth, and used as a framework to understand the interactions of the community investigated in this research.

The landscape of research on online community-based professional learning (CBPL) is rich in case studies, but may be lacking in other types of research. Findings from two key systematic reviews have called for more mixed-method and measurable explorations of online CBPL initiatives (Murray-Johnson, 2014; Belt & Lowenthal, 2020). Explorations of the experiences and outcomes of professional learning initiatives exemplifying the FOLC model could further our understanding of how a model that integrates digital spaces and tools might support research on online or virtual CBPL. This research seeks to explore how Ontario Extend, a provincial CBPL initiative exemplifies the characteristics of the FOLC model, and to measure in varied ways how it influenced the digital competence of higher education faculty in Ontario. The digital competence of faculty who completed [Ontario Extend](#) (called Empowered Educators) was assessed using the Digital Competency Profiler (DCP), a survey instrument developed from the General Technology Competency and Use (GTCU) framework and designed to measure digital competence across four orders - technical, social, informational and epistemological (Desjardins et al., 2001; Desjardins, 2005). A profile of the digital competence of the group was used to understand their general competences (this profile will be explored in the Findings). To complement this profile and add richness to the understanding of the impact of their learning on their teaching, anecdotal evidence was collected via a focus group. Empowered Educators (EEs) were asked about their perceptions of their digital competence before and after participating in Ontario Extend, and how they felt community and embedded digital practice influenced their

learning. The goal of this research is to contribute to a growing body of research exploring faculty experiences in CBPL, and to further interrogate how learning in community can support the development of digital competence.

In the next section, the Ontario Extend initiative will be described in greater detail, and complemented by a literature review outlining prior research on online CBPL supporting digital competence development of faculty in post secondary education. Definitions of the terms to be used in this research project will be explained, as well as an overview of the role of community in learning, CBPL models and how these inform the FOLC model. The project will then proceed into reporting the results of the DCP survey, and insights from the focus group discussion. Findings, discussion and insights for further research will be outlined.

Chapter 2: Literature Review

2.1 Defining Digital Competence and Professional Learning

Gilster (1997) coined the term digital literacy to identify emerging skills needed to understand and use information from various computerized sources and formats. However, as digital spaces and skills have evolved, newer definitions better reflect the tasks, skills and knowledge that influence our capacity to work and thrive with digital tools and in digital spaces. Higher education research often interchanges digital literacy and digital competence/competencies, creating a confusing landscape of mixed definitions and messages (Spante et al., 2018). According to the same source, digital literacy has historically been the most commonly used term, however digital competence is emerging as a term with similar applications, but more robust justification. Digital competencies broadly are well defined: they are a set of digital skills, complemented by knowledge, attitudes and values informing ethics, privacy and societal perspectives, that can be applied across varied and novel situations (Janssen et al., 2013). Definitions of digital competence tend to include technical skills developed over time, but also incorporate skills in self-reflection and critical thinking (Krumvik, 2014). The term digital competence was adopted by the European Commission in the development of the Digital Competence Framework (Ferrari, 2013). More recently, definitions of digital competency used in education have expanded, including criteria suitable to ongoing, and flexible forms of learning:

It is important for [educators] to have the ability to search, collect and process information and approach it critically and systematically, as well as the skills to use the design tools for media information and the capacity to access, search and use Internet-based services, especially in the context of their future activities and

opportunities for continuous professional qualification (Tsankov and Damayanov, 2017, p. 204).

Perhaps as a result of greater specificity in its definition and connections to lifelong learning, digital competence is the term more frequently used in research studies investigating faculty's pedagogical and technical competence (Spante, et al., 2018).

When used in this research, digital competence will refer to the range of competencies across the four orders measured by the DCP survey: technical, social, informational and epistemological.

Similarly, professional learning will be used in this research instead of professional development. Professional development has traditionally been associated with activities which tend to reflect passive, transmission-style approaches to learning, such as one-off workshops, training sessions and conferences (Stewart, 2014). Fullan (2006) is particularly critical of professional development activities, claiming they often reinforce divisions between pedagogical theory and practice, and fail to result in meaningful changes in teaching practice. Others have criticized conventional professional development for de-contextualizing learning from real-world skills and problems (Leafstedt & Pacansky-Brock, 2016a; Webster-Wright, 2009). Alternatively, professional learning connotes a perspective of ongoing and active engagement, which might also be self-directed to varying degrees. Professional learning activities also often rely on evidence of learning, producing meaningful learning artefacts which can be recycled and repurposed. As expressed by Lopes & Porter (2018) thoughtful reconsideration of practice and learning artefacts are empowering elements in the design of professional learning experiences:

A key element of many professional learning programs is that they are outcomes-based, requiring evidence of completion. The goals are intentional; individuals

extend their professional knowledge by engaging and interacting with learning resources and activities in a way that challenges previous assumptions and leads to a change in practice. This process will empower educators to make informed decisions about the practices and technologies that will best suit the needs of their students and their own continuing professional learning needs. (p. 8)

Altogether, investigating how participation in Ontario Extend may have affected digital competence (DC) through community-based professional learning (CBPL) may help refine our understanding of the evolution of educators' digital skills and pedagogical practice in these experiences.

2.2 An Overview of Ontario Extend

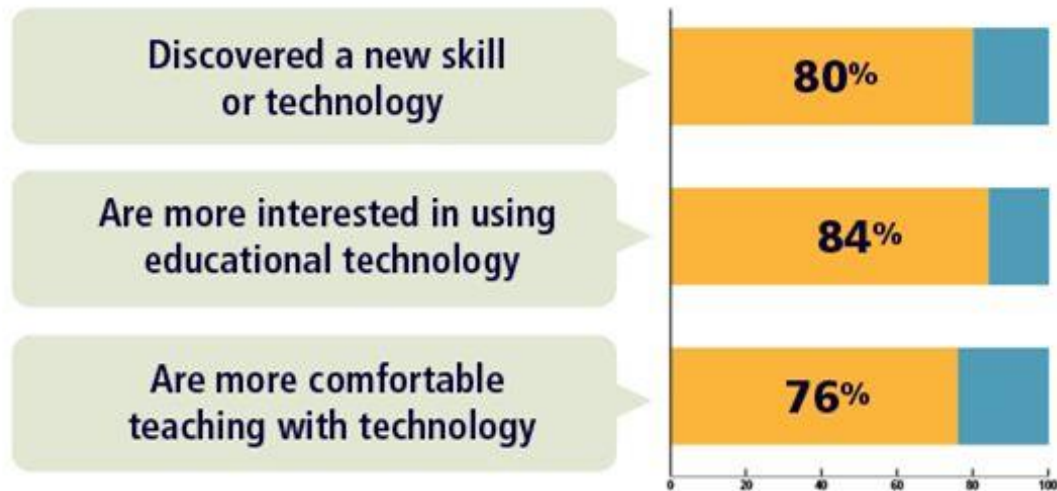
Developed in response to the 2017 National Survey of Online and Digital Learning Report, Ontario Extend is a provincial CBPL initiative targeting digital competence development (Lopes & Porter, 2018). The initiative aims to support staff and faculty in post-secondary institutions in developing a range of social, technical and informational skills suitable for teaching and learning in digital modes and spaces. The initiative was openly published under Creative Commons licensing, intended to be readily adoptable and adaptable to local professional learning contexts. It comprises six self-paced online modules, each targeting a different characteristic of a professional persona based on Simon Bates' (2014) model of a 21st century educator: Teacher for Learning, Curator, Technologist, Collaborator, Scholar and Experimenter. The modules blend synchronous and asynchronous learning activities and interactions, inviting participants to share, connect and learn through an integrated and adaptable landscape of websites, online courses, blogs and/or social media. The tasks take a flexible and inquiry-oriented approach, where faculty can identify their own preferred challenges to address

as they learn. The initiative is built around a learning community, where faculty share advice and example artefacts through social media, blogs, and/or discussion boards. Upon completion of all six modules, participants graduate as Empowered Educators (EEs), and ideally depart with a host of new digital skills and an ongoing community of supportive colleagues.

The program has had a demonstrable impact. As of 2021, the initiative has seen several iterations, influenced over 1000 participants, and been implemented in 39 post secondary institutions in Ontario (Mackie, 2020; eCampusOntario, 2021). When polling all participants who had completed at least one module, the feedback reports reflect the positive impact of participation (Figure 1). Over 80% of Ontario Extend participants identified they were able to discover a new skill or technology, while 84% indicated an increase in their interest in educational technology (n= 51 respondents).

Figure 1.
Participant feedback from the Ontario Extend exit survey (eCampus Ontario, 2021).

After Ontario Extend, Participants:



However, when participants were asked whether they felt more comfortable teaching with technology, the respondents were significantly less likely to report agreement (76%). This finding leads to questions - is this confidence difference related to how far respondents have progressed through Ontario Extend, or to generally low confidence in teaching with technology among them? Perhaps other factors? This data point is unclear, but illustrates there can be value in exploring further the experiences of those who participate to better understand this phenomenon. Additionally, although Ontario Extend seems to have significant reach and impact within the province, as of the time of writing, no peer-reviewed research has yet been published about the initiative or its impact on the digital competence of participants. Research exploring the experiences of EEs may help illuminate the process of developing confidence, which is one measurement informing competence. It may provide evidence about how learning in digitally

embedded communities, as described in the FOLC model, can influence digital competence development.

2.3 Social Constructivism and Community-Based Learning Models

The FOLC model and Ontario Extend initiative are both grounded in a history of social-constructivist principles and practices. This section will explore some of the context informing the development of the FOLC model, and how Ontario Extend might be viewed as an example of an FOLC type environment. The social-constructivist school of thought understands learning to be socially-mediated experiences of knowledge co-construction, rather than purely cognitive absorption processes or behavioral responses to stimuli (Cholewinski, 2009). Vygotsky (1962) contended that cognitive functions form as products of social interactions and discourse with others. Similarly, Dewey held that learning and education primarily occurred through social interactions, believing learning to be a “process of living and not a preparation for future living” and the classroom to be first of all a social environment (Flinders & Thornton, 2013, p. 53). Lave & Wenger (1991) believed the community to be key to learning, as relationships, mentorship and shared experiences helped learners form their identities and shape their opinions. In this school of thought, knowledge is an artefact of our meaningful discussions with others around ideas and problems we are experiencing.

Hooks (1994) offers additional insight to the ways discourse and community influence learning. She contends that conversation is a strong motivational factor in learning. She asserts “as a... community, our capacity to generate excitement is deeply affected by our interest in one another, in hearing one another’s voices, in recognizing one another’s presence” (n.p.). The critical feedback and questioning discussions occurring in learning communities can often be

constructive for learners, as different perspectives build critical analysis and reflection skills (Hooks, 2002). The positive tension created through critical exchanges among group members leads to productive dissent, conversations which challenge beliefs and solicit alternate perspectives (Trninic, Swanson & Kapur, 2018). Learners question and debate, creating mental habits which lend toward innovation and exploration. These exchanges lead to deeper self-reflection, where participants question and reshape their conceptions and identities. As members renegotiate their identities and goals, they also reconstruct the community itself with their new conceptions (Hod, Bielaczyc, & Ben-Zvi, 2018). Communities which do not promote this productive dissent may not adequately result in meaningful learning.

For professional learning initiatives such as Ontario Extend, community is crucial in sustaining motivation and supporting learning. There is significant evidence that the critical and supportive relationships built in learning communities can positively impact teaching practice (Murray-Johnson, 2014). Broadly, online learning communities support faculty with timely examples and information, shared values and a sense of belonging where it may be lacking (Ardichvili, 2008). Collaboration, relationship building, and peer-to-peer mentorship are often identified as highly beneficial elements of these communities (Busay, 2018; Golden, 2016; Hyder et al., 2020; Patton & Parker, 2017; Soto et al., 2019; Steinert, et al., 2016). Faculty in higher education may often feel they teach in silos; yet CBPL may help “cultivate ongoing and evolving learning partnerships that serve to raise the skills, awareness and knowledge of all participants” (Golden, 2016, p. 86). Social interactions within these communities are noted to have a strong positive influence on faculty’s attitudes and pedagogical philosophies, particularly supportive of early career educators (Murray-Johnson, 2014; Trust et al., 2017; Belt & Lowenthal, 2020). Relationships with peers and mentorship “on-the-spot” and as needed can

support educators as they grow into their craft, whether they are refining their pedagogy or working on their digital competence.

Often, CBPL will occur in online or virtual spaces as this facilitates anytime, anywhere access to learning and support. In these spaces, digital learning is inherently embedded in participation. Many such communities organize activities in networked and flexibly accessed online platforms, such as social media, collaboration workspaces like Microsoft Teams or Slack, or an LMS. Evidence suggests some short term benefits, such as greater general awareness of technologies (Ng, 2015). Sharing experiences about trial-and-error processes can generally help faculty build confidence and comfort with new technology and improve their skills in iterating solutions over time (Holmes & Kozlowski, 2015). However, these spaces can provide longer-term benefits as the community grows and matures. When supported over the long term, online learning communities may foster improvement in faculty members' attitudes towards technology and shifts in their teaching identities (McKenna et al., 2016; Murray- Johnson, 2014). In a well-established community, faculty are less likely to experience anxiety about exploring new technologies (Golden, 2016; Bedford & Rossow, 2017; Busay, 2018; Cottom et al., 2018). Some evidence suggests this happens because faculty learn from each others' examples and ask each other questions, and not necessarily that they test the technology for themselves (Kirkwood & Price, 2014; Schmid et al., 2014). Sharing examples and advice can help faculty shorten cycles of iteration (Ng, 2015). Well-tended learning communities have been shown to correlate with successful adoption of organization-wide technology initiatives (Holmes & Kozlowski, 2015; Nolin, 2014). Investing in learning communities over the long term can also support faculty through times of change or uncertainty. Studies are emerging which suggest that faculty perceived membership in an online community to be a key support in their pivot into remote

teaching and learning during the COVID-19 pandemic (Bolisani et al., 2020). By investing in sustaining learning communities over other, less effective activities, facilitators may begin to see changes in practice and digital competence that have been sought for so long.

However, as noted previously, there may be a lack of available and appropriately designed CBPL to act as models for effective developmental activity in Ontario (Bates, 2018). Of those available, many occur in fully online format, but faculty often feel these lack factors like social interaction, motivational influence, meaningful outputs, or personal relevance (Wynants & Dennis, 2018; van Dijk et al., 2020). These factors are especially problematic as faculty's teaching conceptions relate to their expectations about PL and can limit or constrain their development as a teacher as a result (Kirkwood & Price, 2013). If the CBPL in which faculty participate does not reflect a rich and complementary blend of technical and pedagogical enhancements, neither will their teaching. Further evidence on the limitations of online CBPL targeting DC among faculty can be found in Belt & Lowenthal's (2020) systematic review of peer-reviewed research. Their findings indicated that delivery modes remain predominantly in-person, which may lead to accessibility challenges and the marginalization of many faculty who may be unable to attend (Bali & Caines, 2018). Reliance on in-person PL may also undermine effectiveness - when the intention is to create digitally competent faculty, PL ideally would use digitally competent approaches, and occur in digital spaces (Leafstedt & Pacansky-Brock, 2016a). Complementing synchronous and asynchronous online modes with varied and relevant use of online spaces like social media, blogs, and websites can support "real-world" learning and experiences for faculty, beyond what might be typically experienced in a closed learning management system (LMS) (Leafstedt & Pacansky-Brock, 2016b; Bose & Lowenthal, 2018). Given that online video meeting platforms are now commonplace, PL activities can facilitate

faculty connecting anytime, anywhere (Moser, 2018). Belt & Lowenthal (2020) suggest that a digitally competent approach to designing PL would ideally connect faculty across disciplines, time and space, all in an environment that embeds the skills they aim to build.

Equally importantly, Belt & Lowenthal's (2020) findings lend further evidence in support of the central role community plays in the development of DC. They identify a distinct pattern across existing research of faculty seeking out advice from networks and communities of colleagues when learning technology. These connections likely facilitate faculty-to-faculty learning, and are strongly positively correlated with motivation and active participation (Georgina & Hosford, 2009). The idea-sharing and troubleshooting that often happens among peers may positively affect faculty's attitudes and beliefs toward teaching within technology, and in turn is a predictor of faculty's confidence and motivation in exercising new digital skills (Holmes & Kozlowski, 2015). A community where faculty own and define the space, rather than one defined or led by technologists or facilitators, may best support connection and distributed responsibility leading to (Belt & Lowenthal, 2020). Faculty's feelings of confidence and preparedness for technological change may improve (Holmes & Kozlowski, 2015; Sheffield et al., 2018).

There is also evidence that digitally-embedded CBPL has a positive influence on teaching practice. After participating in these types of learning experiences, faculty may be more likely to practice more egalitarian and constructivist teaching approaches (Blayone et al., 2017; vanOostveen et al., 2019). CBPL that facilitates conversation and feedback around problems unique to their own teaching may improve motivation to engage in ongoing learning (Gerken et al., 2015). The strong sense of belonging perceived by the participants in CBPL positively correlates with the transfer of new ideas into teaching practice (Bedford & Rossow, 2017).

Overall, the evidence seems to support the design of professional learning communities which exemplify rich, problem-oriented activities in a flexible and collaborative online environment where faculty connect and share experiences with each other as they bring technological learning into everyday professional practices.

2.4 The Fully Online Learning Community (FOLC) Model

The Fully Online Learning Community (FOLC) model exemplifies these characteristics. Other, more general models of CBPL exist, but most were developed prior to digital spaces being readily available, and so often do not directly integrate technology into their framework. The Community of Practice (CoP) model (Wenger, 1998) is widely known, and is described as “groups of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly” (Wenger-Trayner & Wenger-Trayner, 2021). CoPs include a common domain or scope, a set of practices or skills, and a community of professional colleagues (Wenger, 1998). Other related models include professional learning communities (PLCs) or personal learning networks (PLNs), which are often implemented in online environments but are usually poorly defined in the literature (Senge, 2006). Academic research often tends to use these terms interchangeably, though implementations may differ widely (Blankenship & Ruona, 2007). However, each of these models typically incorporate technology as a set of tools or a facilitative platform peripheral to the model, rather than an integrated component to the design (Wenger, 2011).

A related framework, Community of Inquiry (CoI), was conceived to help theorize a social-constructivist approach to asynchronous and text-based online discussion forums. CoI conceive of communities as developed from three presences:

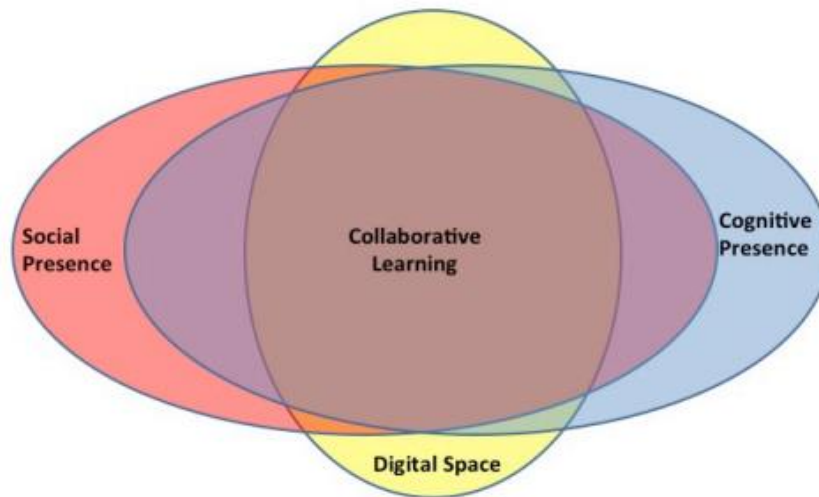
- Social presence, a participant's identity and personality within the course;
- Cognitive presence, a participant's ability to construct meaning through discourse and reflection;
- and Teaching presence, an instructor's design, facilitation and direction of the community toward learning goals and processes. (Garrison et al., 2000).

Each of these presences shape experiences of learning through the qualities of interactions in asynchronous online discussions. While the CoI model is the most extensively used framework guiding online teaching and learning (Castellanos-Reyes, 2020), it has also been criticized for disconnecting digital technologies and the competencies needed to engage with them from the model (Blayone et al., 2017). Some argue the CoI model does not adequately reflect the varieties and complexities of co-constructed online learning experiences, particularly given the collaborative capacities of contemporary platforms and tools (Annand, 2011; Shea and Bidjerano, 2009). Others suggest the model oversimplifies complex and multifunctional communication processes, and creates misunderstandings about how to best facilitate rich and co-constructed online discourse (Xin, 2012). Given these challenges, more contemporary frameworks specifically developed with online interactions in digital spaces as part of the initial conception might be more instructive and accurate reflections of the conditions of learning in online spaces.

The Fully Online Learning Community (FOLC) model (Figure 2) refines the CoI model. It does this by repositioning teaching presence as an integrated component of social and cognitive presence, becoming more facilitative and less directive. This is arguably in better alignment with social-constructivist principles. Additionally, the FOLC model centralizes the importance of digital space in the model (vanOostveen et al., 2016). The digital space is understood to be integral to the relationships, interactions and skills experienced by the

community.

Figure 2.
The Fully Online Learning Community (FOLC) Model. (vanOostveen et al., 2016)



The FOLC model integrates principles from CoI and other community-based models with frameworks informing our understanding of DC, such as the General Technology Competency and Use (GTCU) framework. The GTCU conceptualizes the DC of individuals or groups across four orders of competence - technical, informational, social and epistemological (Desjardins et al., 2001; Desjardins, 2005). In the FOLC model, responsibility and facilitation is distributed among community members, who share power and influence over the goals, structure and direction of both the community and the digital environment. The digital space facilitates and augments interactions among members, unlimited by any preference for synchronous or asynchronous affordances (Blayone et al., 2017). The facilitator empowers and supports the participants in activities, while exemplifying effective digital practices. As a function of being participant-led, the FOLC model directly incorporates flexibility and choice in the tasks and

activities, typically taking a problem-based learning (PBL) approach. Participants can choose what synchronous and asynchronous tools they may prefer to use, often choosing options suited to the tasks and being investigated. In this model, DC and CBPL can be considered fully combined and integrated.

There is already evidence that professional learning initiatives using the FOLC model move participants beyond digital skills, affecting participants' beliefs and conceptions about teaching and learning (vanOostveen et al., 2019). It has been theorized to address identified challenges in higher order competency development in support of online educational models (Blayone, 2017). The model can be flexibly applied to hybrid learning, and has already been used to develop Additional Qualifications courses for educators in Ontario and undergraduate and post-graduate courses within Canada (vanOostveen, 2020).

This author suggests that the Ontario Extend initiative most closely resembles the FOLC model in implementation. The FOLC model was newly developed when Ontario Extend was released in 2018, perhaps explaining why it was not included in initial research to support developing the program. However, Lopes & Porter (2018) cite many of the same foundational frameworks and principles as having foundational influence on the design of the initiative, including social constructivism, the CoP model, self-directed learning, and social and cognitive presence. The program includes inquiry-oriented activities designed specifically for collaborative digital environments. Facilitation activities most often involve motivating, supporting and connecting participants through their learning. While Ontario Extend does not exclusively require collaborative completion of activities, the initiative does rely on collaboration and feedback as key elements of participation. Lopes & Porter specifically described their goals in developing the program as follows:

[O]ur interest was in developing a self-directed learning program, driven by the interests of participants and supported by a network of mentors and colleagues. We set out to build a process for engaging educators in a professional learning approach that could grow and evolve over time to match emergent needs or the advent of new technologies (p.7).

As a CBPL initiative where self-directed learning is intended to grow and evolve over time in an environment which treats technology and learning as deeply interconnected, it appears that Ontario Extend can be aptly conceptualized through the FOLC model.

Consideration can be made for any potential tension between a framework which inherently supports collaborative and co-constructed learning goals (FOLC) and one which is outcomes-based (Ontario Extend). This tension is not irreconcilable, however. A truly social-constructivist learning model will seek to create broad outcomes which can be attained in flexible and various ways, as would continue to facilitate participant-led goal setting and an inquiry oriented perspective. The outcomes of Ontario Extend, for example, include:

- exploring key skills and knowledge to extend and transform teaching and learning;
- contributing to the digital fluency of educators;
- supporting digital tool selection using evidence-based research (eCampusOntario, 2022)

These outcomes reflect that the FOLC can be implemented in outcomes-based learning, where the outcomes are crafted to be flexible and at a high enough order of thinking to support problem-oriented learning.

2.5 Measuring DC with The Digital Competency Profiler (DCP)

The DCP is the latest version of a survey operationalizing the GTCU framework, developed by researchers at the Education Informatics Laboratory (EILab) at Ontario Tech University (Hunter et al., 2018). It measures self-reports of confidence and frequency of use of 26 digital behaviors across the four orders of technical, social, informational and epistemological competency. Each order is measured by 7 survey items in the DCP, with the exception of the Technological order, which measures 5. DC is measured by mapping the 5-point Likert-scale scores of the frequency and confidence of use of the survey items. This measurement approach is effective because the frequency with which an activity or behaviour is practiced translates to its assimilation into daily processes. Similarly, an individual's confidence maps directly to their self-efficacy, or their beliefs about their capabilities to achieve a specific goal or task (Bandura, 1977). Improved self-efficacy helps an individual persist in collecting meaningful experiences informing how suitable a solution is for a problem, further enhancing skills over time and practice. The DCP has typically been used to assess digital readiness for online learning among students in various contexts (Blayone et al., 2018b), but some have begun using it to explore faculty's DC in preparation for teaching online and the readiness of health professionals in increasingly digitized work settings (Blayone et al., 2018a).

While other methods exist to measure DC, often these can be challenging for researchers to implement. Often, survey instruments measure concepts, rather than behaviours (DiPasquale et al., 2019). Still others focus on too granular a level of skill. For example, van Deursen and van Dijk (2010) suggested measuring timed tasks to determine DC. However, this may not illuminate broader competence. Measuring high-level concepts or too micro-level of skills can pose challenges for researchers. In comparison, a pilot study of the DCP compared the self-reported

competence levels to task performance, where tasks were mapped to the DCP indicators (Blayone et al., 2018a). This study recorded the behaviours exhibited during task completion using multi-perspective cameras, and analyzed task completion strategies, observed confidence and engagement, navigation of issues and other factors. The findings concluded that the self-reports generated by the DCP indicators positively correlated with actual task performance (Blayone, 2018). The research so far suggests that the DCP can offer an accurate representation of the DC of respondents.

Chapter 3: Research Intent

While much research on CBPL has addressed understanding effective frameworks and case studies of effective implementations, less research measures personal experiences of this kind of learning initiative. Murray-Johnson (2014) substantiated the beneficial impacts of participation in virtual or online CBPL on the teaching practice of faculty in higher education nearly a decade ago. But since then, emergent research often lacks methodological strength and fails to share design elements of the professional learning activity (Bragg et al., 2021). Noticeably absent from the research are forms of pre- and post-assessments of faculty attitudes towards digital tools or DC (Belt & Lowenthal, 2020). The research collected here so far seems to reflect predominantly cases of implementation over personal experiences of participants.

By engaging Empowered Educators (EEs) in a self-assessment of their DC and collaborative skills, and by conducting a focus group leading to reflection on their experiences, this research seeks to collect information about participants' individual experiences in Ontario Extend. This research aims to implement an approach which will both gain insight on the levels of DC exemplified by EEs and allow EEs to reflect on the impact their learning experience had on their practice. The intent is to contribute to a growing body of research investigating the impact of CBPL on DC development.

3.1 Research Questions

The specific research questions addressed will be:

1. What levels of DC are self-reported by Empowered Educators, via the DCP?
2. How do Empowered Educators describe changes in their digital competence as a result of their participation in Ontario Extend?

Chapter 4: Methodology

4.1 Data Collection

To solicit participants, the researcher contacted EEs via social media. The parameters for inclusion in this research were that respondents should be a faculty member at a post- secondary institution in Ontario, who had also successfully completed all 6 modules of the Extend. EEs were invited to complete the basic demographic survey (BDS), and Digital Competency Profiler (DCP) prior to participating in a focus group (Hunter et al., 2018). The DCP results were aggregated into a profile of the DC self-identified by EEs. Following this, a focus group was held to complement these profiles with anecdotal input about the role the community had in the experiences of the EEs. The focus group used semi-structured questions to guide discussion, asking participants to consider their DC prior to Ontario Extend, their DC now, and how their participation shifted their practices. Focus groups are appropriate to qualitative research which is shorter term, and intended to elicit reflective inspection of an internal process (Jamshed, 2014). This type of research can often offer empowering benefits for participants as they share expertise and discuss shared experiences with peers (Gibbs, 2012; Williams & Katz, 2001). Participants were asked about their perceptions of their DC prior to the experience, and after. Following this, they were invited to expand the discussion on the impact of the community on their learning experience. After the focus group, the conversation was coded to identify themes. By using the DCP to self-assess digital competence, and a focus group to understand internal changes reflected in the DCP, a richer understanding of how FOLC initiatives may impact DC development can be gained.

4.2 Research Limitations

Due to limitations in participant consent collected at the time of participation, feedback data and participation artifacts posted through the modules of Extend were ineligible for use in academic research purposes. Additionally, as the survey was administered after completion of the initiative, this study relies on participants' recollections about their DC prior to participation in Ontario Extend. Further, due to the small participant population size and self-selection in the sampling, generalizability is not possible with this particular research study, even to the pool of EEs. The data was analyzed and compiled into a form that is similar to a case study; however, due to time constraints on this project, the findings and discussion should be viewed as an abbreviation of the thick, rich narratives that are typical in full case studies.

4.3 Participant Demographics

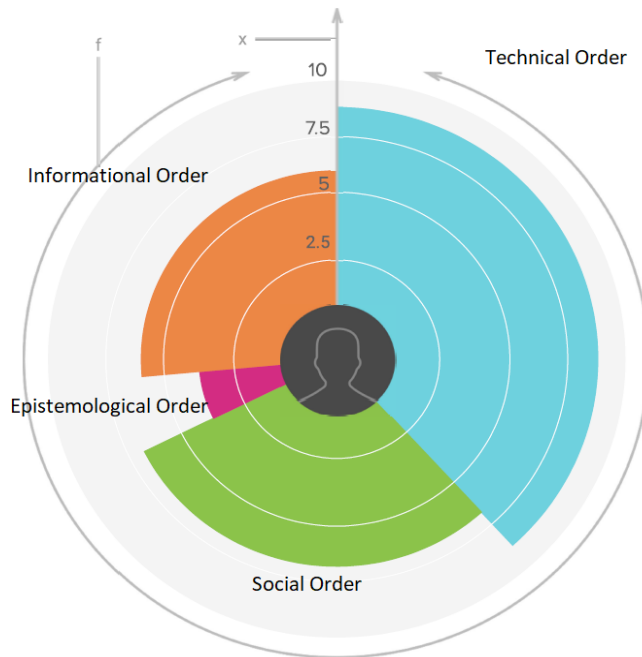
A basic demographics survey was used to collect essential information. Six Empowered Educators were recruited for this research. Demographically, the participants were all current faculty at higher education institutions in Ontario. Coincidentally, all participants were women, and almost all participants were above the age of fifty. Each holds a post-secondary credential, 3 hold a Bachelor's degree, two hold a Masters degree, while one member holds a college diploma.

Chapter 5: Findings and Discussion

5.1 The Digital Competency Profiler (DCP)

An average profile of this group of EEs was created, as an aggregation of the participants' scores across the four orders of competence. The profile (Figure 3) reflects their self-reported competencies along relative confidence (x) and relative frequency (f) (DCP, 2022). The deeper the radius on the x-axis, the more confident participants were in the described action. The wider the radius on the f-axis, the more frequently they identified using the action described. The following findings and discussion will relate to observations around the confidence level and frequency reported in the individual responses, along with some investigation into the relationship between this evaluation tool and the activities within Ontario Extend.

Figure 3
Averaged DCP Profile of Participants



Note: Aggregated data reflects an averaged profile of the Empowered Educators participating in this research study, using the DCP.

5.1.1 Confidence and Frequency

In this group, high levels of confidence were reported across question orders. Nearly all criteria on the DCP were self-reported as “Fairly confident” or “Highly confident,” or the fourth and fifth levels on the 5-point Likert scale. This group of EEs exhibited highest confidence and frequency in the technical and social orders, which is understandable given the social nature of teaching, their self-identified technical skills, the proliferation of information management skills often required in teaching, and the direct incorporation of these orders of skills in Ontario Extend.

This group reported lower frequencies of use of the measured interactions than might be expected given the confidence levels reported. Fewer than 10 criteria (of 26 measured) were reportedly used daily. Approximately half of the criteria had a median frequency of a few times a month or less. Yet the self-reported confidence level was “Fairly confident” or greater for the same items. While this does not signify overall competence, which is measured as both frequency and confidence, it does signify a comfort with applying and adapting technical tools to emergent problems. It may also indicate EEs feel they have a collection of prior experiences which they can adapt to versatile contexts. The activities in Ontario Extend may have contributed, by leading participants toward greater confidence while not necessarily leading to a consolidation of some skills into regular practice.

Most of the actions practiced with greatest frequency were of a social orientation, such as communicating using text chat, audio, email or video. Of note is the action within the social order rated with the lowest frequency and confidence: “To share my work and ideas publicly (via

blogs, photo sharing, etc.).” This type of action was a major component of early iterations of Extend in which most of this group participated. Participants rated themselves “Fairly confident” or greater in this area, yet almost all participants rated themselves as only likely to do so a few times a month. Additionally, actions associated with the epistemological order, entailing skills in creating and using flow charts, maps, algorithms, sorting large amounts of data, or performing complex calculations, were the least frequently applied. This is not a surprise; the epistemological order is frequently the least reported set of actions across applications of the DCP (R. vanOostveen, personal communication, July 17th, 2022). Further research could investigate how the tasks of Ontario Extend might map to the items in the DCP, perhaps using this to recommend adjustments to the learning activities to better support the development of skills within the epistemological order. Further research might also look to apply the DCP as a pre- and post-assessment tool within a cohort participating in this or a similar initiative. This is a particularly relevant application due to prior noted gaps in the existing research.

5.1.2 Competence Index

In order to measure overall competence, the frequency of use was mapped and used as a multiplier of the confidence rating. This generated the overall competence index (CI) of each participant in the group within each order (Figure 4). While competence varied across the participants, noticeable trends emerged.

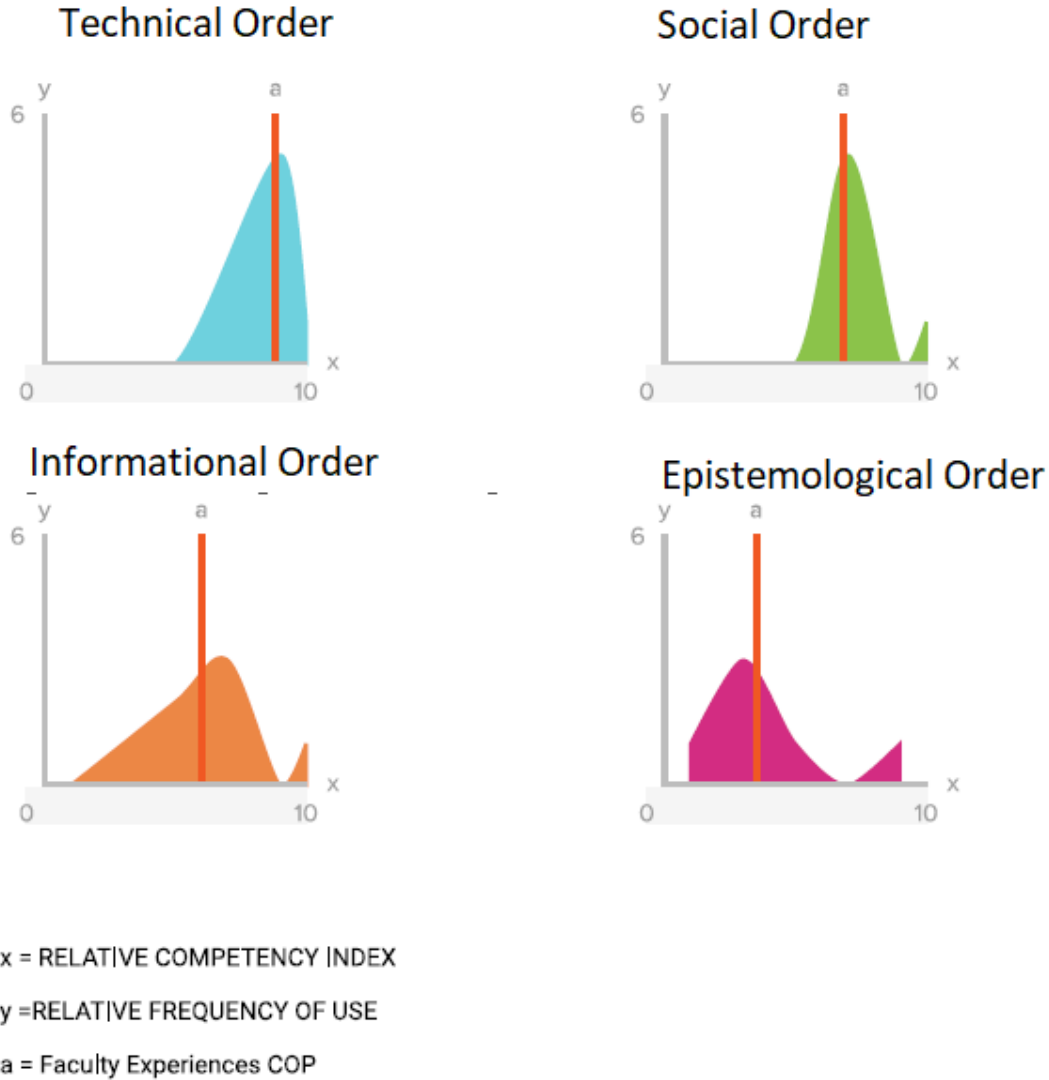
Generally, the social order is significantly associated with strong competence, while the technical and informational orders follow. This group’s activities approximated the baseline established for the DCP (Figure 4; DCP, 2022). At an average of 9.71, the high level of confidence in the Technical Order (TO) conveys these participants feel comfortable executing tasks that require

the use of varied computers and operating systems. A higher skill rating in TO also concerns the skills of generating a plan and using a tool according to a particular context, which the EEs report clear comfort with (EILab, 2022). Similarly, the EEs report a high level of competence in the Social Order (SO) with an average score of 7.35. This order represents a range of knowledge and experiences with empathetic and respectful online communications. In this order, however, there was greater range in the responses, which may derive from the group members' widely varying perspectives on the role of social media and online communications in their personal and professional experiences. This is explored in later sections. In the Informational Order (IO), the competency measures an individual's or group's practical capability to collect, aggregate and interpret information. This group of EEs' average score of 6.37 is relatively lower. The knowledge in IO may be infrequently practiced in their roles as faculty, where they may be less likely to assimilate and synthesize information to determine patterns or themes across various purposes. Epistemological Order (EO) concerns skills related to reported by this group While high confidence should not automatically suggest high competence, as the action is not practiced regularly enough, it suggests comfort with technological solutions to problems in different contexts.

Figure 4.
The DCP Relative Competency Index for EE participants

RELATIVE COMPETENCY INDEX

RELATIVE FREQUENCY OF USE



Note: This graph represents the four orders of the DCP and the relative competencies index of the Empowered Educators group, as compared to a baseline. The a line indicates the Empowered Educators group average.

5.2 Focus Group Findings

A focus group was held to better contextualize the observations made via responses to the DCP. In this session, participants were asked about their prior experiences with technology, their goals for participating in the initiative, and what they felt to be the outcomes and impact on their practice.

When discussing the impact their participation in Ontario Extend had on themselves and their teaching, there were numerous themes in the rich discussion. Overall, many of the EE's indicated that they revisit ideas or approaches from the initiative, and that their learning experiences were positive and supportive of their practice. The most frequently identified themes were:

- Validated identities as technologically competent educators (n=16 coded comments);
- An improved ability to analyze a technological solution to a pedagogical problem, using a framework (n=16)
- Increased confidence in their implementation of technology solutions (n=21);
- Improved focus on pedagogical intentions when applying technological knowledge (n=16);
- An ongoing community of peers, mentors and colleagues (n=25).

Each of these themes is expanded on in the following sections.

5.2.1 Validated Identities as Technologically Competent Educators

Self-Reports of Perceived DC Prior to Ontario Extend. While this study has obvious limitations in referring reliably to the DC of the participants prior to their participation in Ontario Extend, all participants consistently expressed confidence in their general skills as learners, and

in their personal DC outside of teaching. All participants described themselves as lifelong learners,. They all also spoke of themselves as people who consistently seek out and participate in new opportunities for learning. One participant described themselves as

...someone who is always trying to learn... I think that's the biggest reason why I really wanted to participate in the program and because there's always things you learn. I mean I've been teaching for over 20 years and there's always things I'm still learning.

This may point to a limitation to the reach of Ontario Extend. If all participants self-select into the experience, then the development of digital competence will centralize to those who opt to participate rather than appealing more broadly to faculty.

To gain some better understanding of rationales for electing to participate, the EEs were asked to share insights about technology use in their teaching prior to participating in Ontario Extend. The majority of the group self-identified as technically proficient to some degree. "I'm the person that fixes the tech at home," joked one participant, while another offered "I used a lot of technology at home for personal reasons... I did online streaming. Lots of gaming ... [and I'm] really good with [Microsoft] Office for personal productivity and those kinds of things." One participant identified they've always been tech-forward: "Technology has always been an important part of school, I was probably one of the first people to have a computer in my university to write all my papers." Yet another participant spoke about their technical skills as a novelty among their colleagues: "It's almost a running joke in my department that when there's a new technology, I would lock myself in a room for 12 hours, and I would come out and go "I got it, I know how it works!"'" When one person described themselves as "tech-savvy," it elicited unanimous agreement from the others. Clearly, the participants in this focus group hold strong

self-concepts as technologically proficient individuals. Further research is warranted to better understand whether faculty who engage in Ontario Extend also define themselves as personally technically proficient, to determine if the initiative might tend to attract those who already identify as “tech-savvy”.

Distinction between Personal and Professional DC. Despite perceiving themselves to be tech-savvy, EE’s explained that they did not feel their DC necessarily translated into their teaching. Several participants cited the anxiety they felt performing experimenting with technology in front of an audience of students. One participant explained that they were “nervous to use ed tech in front of my class, but not at home.” The same participant who noted they were often responsible for fixing technology at home indicated “my ed tech skills weren’t great.” When encouraged to elaborate, they expanded: “I wanted to use it, [but] I didn't feel confident to use it and I was worried about what happens when something goes wrong with it, and then... it's totally blown my lesson, so it was just easier to avoid it.” This fearful statement seems to communicate some perception on the part of this EE that applications of technologies in class were intended to be directly supported by them as the instructor, and their perceived lack of confidence in doing so. This phenomenon may also indicate these EEs held transmission-oriented conceptions of the use of technology in teaching and learning tasks, rather than more constructivist conceptions which would encourage choice and flexibility around what technologies to use to suit a learning purpose.

Generally, the group members held cautious enthusiasm towards using digital tools and skills in teaching, but felt they had a lack of experience in implementing them successfully. This may have related again to feeling unsure of what to do if something went wrong. One participant

shared, “I really did not feel confident to, if it falls flat, [say] it’s okay, let’s reevaluate how we can do it.” Other participants identified that, even when they felt confident and had ideas about what tools to try out, they felt they used them only superficially in their practice. One participant shared, “I [knew] how to use it,... but I [was] just internally using it for myself and playing with it, maybe bringing some polling software into the classroom but still not going very deep with it.” This distinction is an interesting one: participants described themselves as enthusiastic lifelong learners who were tech savvy, but their prior conceptions of their own DC in teaching contexts depict them as hesitant learners who were cautious with technology. These experiences and examples may reveal something about the pedagogical beliefs EEs held about their role in facilitating digital skills among learners. Lopes & Porter (2018) noted this phenomenon in their initial introduction of the research behind Ontario Extend:

Having access to and using technology tools in many areas of life does not necessarily equate to being comfortable with online learning and technology-enabled environments. This fundamental concept needs to be better understood; daily use of digital tools does not always translate into mastery or empowerment with those tools in the context of teaching and learning. Rather, users of educational technology exist on a continuum of knowledge, and gaps of knowledge vary among individuals (p. 6).

As noted previously, interaction with and use of constructive digital tools can lead to more constructive teaching practices (Schmid et al., 2014). It will be valuable to investigate further whether these conceptions changed after participation in Ontario Extend, and to what degree.

Further discussion gave greater insight into what factors influenced the EEs hesitancy to incorporate tech into their practice. Most of the group perceived a lack of community available to support their learning at the time. Feelings of isolation in their organization impacted their confidence and willingness to experiment. One participant explained factors contributing to isolation within their college, "[B]ecause of my kind of unusual position at the college... I'm not really attached to any school, but also... geographically we're so far away from other institutions, there's not a lot of dialogue among the faculty." Among the participants who did have a broader community of colleagues within their college, some cited feelings of confusion around conflicting opinions about what to use and why to use it. A participant identified feeling overwhelmed and pressured as a novice user trying to use one of the many educational technology tools marketed to educators:

It always seemed like there was so much to choose from, and everybody had their favorite tool and then, some people are like "Oh you don't want to use that tool," to the point that I was like, "Okay I'm just going to avoid it," because I [didn't] know which ones I should use, which ones [were] safe. I [didn't] know enough about the background pieces.

Others cited the culture within their organization as a confidence limiter. One participant explains in more depth a phenomenon that many EE's shared:

I know many of us probably have the same sort of situation where you might be in an office with people that look at you, and ask like "Why are you doing that? That's just extra work!" or "Why are you doing that? That's silly." ... You feel like you're this lone person in the room, because you want to use this technology to enhance the class, because you know it's going to help students learn and help

them do better. That's what my situation was, I felt like the little lone person in the room.

This group expressed the greatest uncertainty at that time was about when and how to appropriately apply different tools or skills. These barriers were not related to their technical capacity but to their perceived skill level in evaluating the suitability of different tools in support of pedagogical decision-making. These pressures seem to also relate to the perceived workload issues faculty may experience within the college system in Ontario, which is outside the scope of this research.

Nicholls (2002) describes lifelong learning as an important element of professional learning which elevates the professional currency of the educators involved. But general willingness to learn or to use technology in personal contexts may not connect to a willingness to experiment with technology in teaching practice. Further research may help explore whether and how self-concepts of learning capacity and DC connect. To be sure, community is an important element of lifelong learning, where learning is honored and supported (Nicholls, 2002). EEs all experienced a disconnect from a meaningful and supportive community prior to their learning. Definitions of lifelong learners also include an element of reflection, or “learning about learning” (p. 371). However, reflections on their learning were highly varied among the EEs. While one EE spoke frequently of reflection on learning, another described a notable lack of reflection in their digital explorations for teaching: “I think, like some of you [mention], I probably just did things intuitively more and not necessarily with a real thought process ... Yeah, I think I just didn't reflect on it.” Among these EEs, there was a notable difference between how they described their perspectives and experiences toward learning generally compared to how they

described their perspectives and experiences toward learning DC, prior to participating in Extend. This personal/professional divide is a key distinction which warrants further exploration in additional research.

5.2.2 Key Skills in Support of DC

The EEs identified several related and transferable learning skills they felt they developed during Ontario Extend which are not specifically measured by the DCP, but which they felt enhanced or supported their DC. These skills included being able to analyze a technological solution using a framework, an increase in their confidence in applying technology in pedagogical contexts, an increase in iterative or trial-and-error approaches, and feeling re-focussed on their pedagogical intentions. Each of these is expanded in the following section.

Analyze a Technological Solution using a Framework. Prior to their participation in OE, one participant explained the challenge of researching and evaluating new technologies to implement was a key barrier to their success, despite their existing DC:

I think I had great technical skills, but maybe not so much on the researching part - the ability to search out and find options. I think that was an area where I was probably not skilled in. Like give me a piece of software, I can figure out how to use it, but it was that... skill of researching and finding the technology.

Many of the EEs identified the program improved their use of frameworks to evaluate the suitability of new technologies to suit their pedagogical intents. Some of the frameworks identified included

- The CRAAP test (Blakeslee, 2004), used to evaluate academic resources for reliability and credibility;

- The SECTIONS model (Bates, 2015), used to evaluate the suitability of a tool or technology;
- The SAMR model (Puentadura, 2013), used to inform pedagogical planning when incorporating a tool or technology, in regards to the depth of application.

These frameworks were described as helpful, and motivating. The EE's also spoke to the feeling that these frameworks were cumbersome at first, but eventually helped internalize evidence-informed evaluation and decision-making processes.

I remember... having these kinds of charts to fill out as you're working through different examples or different exercises. And the first time, going through that it felt really kind of awkward... But to have that starting place... was helpful. Now I don't use them. I have somehow internalized the process where I don't need those charts anymore. ...Now it's part of me and part of my practice.

In this focus group, the EEs exhibited awareness of the influential role these frameworks play in their decision making. While not all of the above frameworks were included in OE, the mention of additional frameworks confirms that these EEs may be more likely to prioritize frameworks over features of tools when making decisions about how to address problems in teaching practice. Over time they may be more likely to seek out other frameworks to help make decisions based around effective pedagogies, research, and students' needs and drivers.

Increased Confidence. The EEs spoke often about the ways in which their participation in Extend boosted their confidence in applying technology to teaching contexts. The experience provided opportunities for safe and supported experimentation in relevant contexts, which helped develop confidence over time. One EE noted, "I would say, definitely this was

transformational... And I think part of that was because we actually got to use the tools in ...a safe environment." While the participant did not elaborate on the qualities of a safe environment, several times the EEs spoke of the practice which occurred outside the classroom, where they might exercise new skills without having students present, or by testing with a trusted peer. Participation in Extend also confirmed feelings of capacity to learn, and improved resilience among the EEs. One participant reflected: "I think what I have realized in the last year... is that I have a very strong ability to learn all these digital tools and I have always had quite a lot of ability to do so, and... just how quickly, I can pick things up." Some of this confidence was developed by feeling validated by the opinions and input received from colleagues when sharing their challenges and successes online.

Increased confidence may have also come from regular and ongoing informal practice activities. The learning experience took an activity-oriented approach, and the courses were designed around productive learning activities, the creation of learning artifacts, and both formal and informal learning tasks. Of particular note were the Daily Extends, informal daily micro-learning activities. The Daily Extends occurred in social media channels rather than within the online course. The EEs reported that these daily, informal tasks were easily achievable, confirmed pre-existing feelings of competence with technology, and improved their motivation and interest in the learning:

Those Daily Extend activities that we did on Twitter! Watching what people were doing, I actually got to the point where I was like "I don't have time to do this, but I'm gonna do it anyway!"

For others, this consistent practice sustained changes in learning behaviors. One participant stated that they still regularly participate in a related informal learning activity hosted online and

through social media, [ds101](#), a digital storytelling open online course from the University of Mary Washington. Informal learning activities have a powerful relationship to professional learning - they are positively correlated with improved job skills (Gerken et al., 2016). Professional learning programs with informal activities are shown to lead to greater self-efficacy and improved instructional practices among faculty (Bragg et al., 2021). Further research could look into other professional learning models which blend a FOLC approach with ongoing informal activities.

Increased Iterative Approaches. Participants identified that they began to take an iterative approach to applying innovations in their teaching. Activities within Extend encouraged EEs to implement solutions and then refine them over time. One participant related this to the pedagogical planning approach of backward design: “[S]tarting with the challenge, figuring out a solution, trying it, but then reflecting on it, and tweaking.” Others noted that the process they were engaging in took large problems, and allowed them to make small changes over time to measure impact at timely opportunities:

I’ve looked at problems or challenges in my class and focused on that and I’m finding... instead of just doing something and assuming it's great, I do a small thing and then evaluate it and do a small change and then evaluate it. So those incremental changes all the time throughout the semester, and not just at the end of the semester.

Several spoke about the value they received from involving students in their iterative processes. One EE explained this as practicing informal action research in their classrooms, collecting feedback and input from students as they tested solutions. Testing small solutions and constantly

reflecting on and refining their approach helped the EEs gain positive experiences in implementing technologies within their practice. This experience likely reinforced their self-reported general confidence in their technical capacity, helping them to realize this in their professional context. It also seems to reflect a shift in their mindsets towards using technology - from more of a fixed perspective, to a growth perspective, with room for error and improvement.

Thinking about technology use as an iterative process also resolved worries and concerns about incorporating tech into practice. Whereas previously, the EEs expressed anxiety and a more fixed, all-or-nothing mindset towards using technology in their teaching, they now identified a more trial-and-error perspective. One participant, speaking about their mentorship with colleagues, spoke of an 80% rule, whereby a solution only needed to be implemented 80% of the way, and then became a living, breathing thing which was constantly revisited and adjusted. They spoke of the body language improving among their colleagues when this iterative process was introduced. Others spoke to the way this iterative process helped with feeling prepared for the relative unknowns of remote teaching.

I just think about those skills that, thank goodness, I had when the pandemic hit...

I'm glad that I had Ontario Extend because I [felt] somewhat equipped to handle what I didn't know what was yet in front of me.

This statement directly contrasts to earlier comments where EEs felt far less confident in their DC prior to participating in Extend. This participant approached a point of expertise whereby they felt comfortable engaging in mentorship on technical topics. By reconceptualizing technological experimentation as an iterative process, and by motivating faculty to persist through not-yet-successful periods, Extend may have further influenced DC through

understanding these skills as being always in process. For these EEs, persistence and more flexible perceptions of success further influenced their confidence.

Improved Focus on Pedagogical Intentions. Perhaps related to involving students in their explorations, EEs identified a shift in how they thought about the pedagogical intents of adopting a new skill or tool. In earlier conversations, most identified that their rationale for choosing tools was typically influenced by peer recommendations. However, when speaking about their present practices, EEs framed technological considerations within the possible benefits and learning impact for students. EEs indicated the activities in Ontario Extend frequently created opportunities to practice being pedagogically- and learner-centered:

The Extend modules really helped me with... being able to look at that and say, “Am I using [this tool] just for the sake of using it in the classroom?” ... Or am I using it for a real purpose that I also can translate with my students in discussion? How does this work in my classroom and how does it support where [they are] going in [their] future careers?

For some, this looked like reconsidering their pedagogical approaches alongside their digital competencies. The participants felt their participation led to a greater prioritization of their pedagogical intents in their analysis of the suitability of tech. This displaced techno-centric approaches they may have used in the past, and resituated pedagogical needs and intended outcomes as the driving factor in their inquiry exercises:

One of the things that I got out of Ontario Extend was this idea of, instead of looking at how can I incorporate this cool new tool into what I’m doing, the idea that we start first with what it is that we want students to do or think or

experience. And then, what is going to be the best way to do that? And one of those ways could be some technology.

There were also connections made to how this reconnection with their pedagogical intents may affect relationships with students. For one participant, the experience reconnected them with pedagogical foundations rooted in compassion: “I [had] seen ways that technology could actually increase the kindness and the compassion with my learners, that there was ways that technology could be supportive for them, but also be a platform where I could provide more compassion or understanding.” For this participant, the experience reminded them of their connection to Hooks’ (2002) thoughts on caring as an educator: “all caring teachers... see that to be successful in the classroom (success being judged as the degree to which we open the space for students to learn) [we] must nurture the motional growth of students indirectly, if not directly” (p. 130).

There was further evidence of this focus on students and pedagogical intents within the focus group. At one point, participants began to engage in thoughtful analysis of a particular quizzing tool, comparing and contrasting the intents and outcomes of its implementation in their own practice. Participants began to critically evaluate the recommendation, considering the impact on learners, the suitability of the type of activity for the learner's contexts and content area, and the parameters of the tool. While one positioned a tool as beloved by their students, and their pedagogical intents as supportive of following student interest, another EE considered compassionately the impact the same tool would have for students experiencing anxiety, and the potential demotivating impacts of competition and scoring on learning. While this represents only a small example of the internal processes these faculty engage in on a regular basis, it

reflects the automaticity with which they practice it, and the collegiality with which they engage in discussions around the differences in their pedagogical practices.

5.2.3 Connection with Community

EEs discussed the impact of the community on their professional learning. Several participants shared experiences about their first unsuccessful attempts to complete Extend, when it was delivered in a primarily self-directed format. These participants noted that their interest and motivation tapered off without interaction. Some research confirms the challenges that fully asynchronous professional learning pose for faculty motivation (Wynants & Dennis, 2018). Perhaps in light of this challenge, later offerings of OE better leveraged synchronous meeting tools, a massive open online course (MOOC), and more options of communication platforms. Within the EEs interviewed here, synchronous meetings during the MOOC and social media (Twitter) were key connection points. The synchronous meetups offered the ability to build interpersonal connections in a face-to-face manner. One EE spoke to the benefits of the synchronous sessions:

I think in the model of having the asynchronous modules but we had a weekly check in, and that was the most beneficial to people and they loved the opportunity to meet people in other faculties and other capacities and just kind of chat about learning and development in general.

Another EE shared that they began to develop a better understanding of how to engage in professional learning conversations and build a professional learning network on social media. One participant painted a visual picture of the significance of the community for their practice:

For me, the PLC was huge. It was such a value. I think [Respondent 3] mentioned it earlier “finding people who are your people.” ...I wanted to have this discourse,

wanted the dialogue that maybe necessarily we were not all thinking the same way, we wanted diversity. I found that. Because I could run it by my PLC and say I'm thinking about this. I'm thinking about this technology, do you have any exposure? Do you have any insights? Do you have anything you could offer? I just feel with such a system that it's almost like having them on your shoulder when you go into the classroom... It's like you feel like you're bringing your PLC in with you. And they're all giving you pointers as you're going through it.

For all of the participants, the community was a significant part of the value of the learning experience. It often offered counterpoint to their daily working relationships, and connected them to others who supported or offered critical feedback on their pedagogical decisions:

I know many of us probably have the same sort of situation where you might ... feel like you're this lone person in the room, because you want to use this technology to enhance the class, because you know it's going to help students learn and help them do better. That's what was my situation, I felt like the little lone person in the room. And so, through this, I met not only other people within my school that thought like I did, ... wanted to achieve the same things.

These concerns are likely connected to broader considerations around workload organization for faculty within the Ontario college system, but which fall outside the scope of this research.

However, this anecdote connects to the prior feelings of isolation noted by EEs, and the role the community may have had in resolving some of these through broader connections via online networks.

Another big part of the impact of the community was the members' commitment to sharing and collaboration, which EEs felt was a match for their pedagogical perspectives. One commented, "I think the Open thing is actually like it completely changed my whole idea of [teaching], to be honest." Another shared their awe at

the fact that you could find you know Creative Commons and the fact that you can even... find other people's ideas and use them, because they have a Creative Commons license on it, or you can remix it or... even just to get ideas and to be able to learn how to find those things was huge.

The community impact endured for many participants long after the learning experience. Of those who participated in a cohort blending synchronous meetings and social media, all identified they still communicate with and seek out input from the relationships they formed in Extend. One of the participants shared that "one of the things Ontario Extend did, for me, was to help me find and create this personal learning network (PLN) through Twitter and I still use it, like every week I'm on there following people, seeing what other people are doing, getting inspired." Another participant, who had participated as both a learner and a facilitator in Extend noted, "At the end of it we were really pleasantly surprised to see that CoP kind of came together." Another participant shared how these relationships developed over time: "I still follow a lot of the people that were in our little cohort and they've done a lot of great things since. From some friendships that we've made through that course, some that have been in presentations [together] and just sharing of information, it's been great!" Of note, however, is the way these EEs connected within this research opportunity. Several participants suggested that they found the survey and focus group discussion to be reflective tasks, and revitalized their interest in their learning from Extend. On leaving the focus group discussion, many noted they wanted to stay in

touch, and continue the community which had participated in the research. The EEs may be more likely to seek connections and collaboration, further reinforcing the value and impact of the community elements of the learning on their behaviors.

Overall, the importance of community as a central element of the Ontario Extend experience for these EEs was clear. In alignment with the FOLC model, the connections formed within the networks created were strong, leading participants to feel connected to their peers, and where a sense of trust and mutual support facilitated their work (Blayone et al., 2017). In further alignment with the FOLC model, this strong community was developed through facilitated connections and not strong pedagogical leadership, as Garrison (2013) contends to be necessary for the CoI model to successfully occur. The iteration of Ontario Extend experienced by most of these EEs practiced distributed responsibility, and the facilitation of the initiative did not rely on overt teaching presence to lead the community. Rather, it relied on critical and constructive feedback among participants themselves to foster change in practice, and evades a hierarchical and transmissive perspective toward learning and community formation, again exemplifying key FOLC characteristics (Blayone et al., 2017). Distributed responsibility, and digital embeddedness distinguish Ontario Extend from other, similar initiatives which rely on instructor presence to guide learning, interrupting the connections formed among learners and the integrity of their capacity to define, iterate and solve their own problems as ongoing, professional learners. While the FOLC might be an idealized model, it is one well suited to adult and professional learning, and in alignment with research supporting the integral role community plays in digital learning.

To facilitate distributed responsibility in embedded digital formats, some researchers and professional developers have created websites aimed at connecting faculty through faculty-generated storytelling about experiences with digital technologies in teaching (Cohn et al., 2016;

Greene, 2019). Others are proponents of using the open web as a space of discourse and conversation through blogging, content authorship and open annotation (Levine, 2018). Many have explored the value of social media in greater depth, finding it conducive to relationship building and knowledge sharing (Richmond, 2014; Bedford, 2019). Each of these options practices the distributed optionality for learners to choose their participation and become responsible for defining and resolving their own learning. But one consideration to note is that some forms of openly sharing in professional discourse may not yet be a staple in the professional learning experiences of higher education faculty. In this group of EEs, sharing of their work publicly was the lowest rated competence in the Social order, as measured by the DCP. Public or intra-professional sharing of learning activities may be an ongoing area of growth for faculty and faculty developers. Using more localized communities of sharing may feel safer and be more likely to engage faculty, but may also perpetuate issues of isolation and prevent broader perspectives from being explored. Gradually opening up professional learning may take time.

A final consideration to note is that not all the EEs interviewed in this focus group participated in a cohort which they felt connected them to a rich community of peers and colleagues. One participant completed the initiative completely self-directed, without forming a sustained network of peers to connect with via social media. This person's experience of Extend entailed traditional discussion boards within an LMS environment. This participant did not offer comments relating to the value of connections with colleagues and peers in this focus group. They also did not speak with regards to any ongoing formal or informal learning or sharing as a result of their participation. Further research is warranted to explore the impact of different types of social interactions on community formation and long-term relationship development among

participants. Sustaining community is a key element of ongoing professional learning, and if professional learning experiences do not facilitate this, they may benefit from reevaluation (Murray-Johnson, 2014; Belt & Lowenthal, 2020).

Chapter 6: Conclusions

Post-pandemic teaching and learning will look much different than prior to the pandemic. While the profound and lasting impact of the pandemic on higher education in Ontario may still yet reveal itself, it may suggest a need for upskilling into greater DC. There is renewed interest among faculty in participating in learning activities and developing new digital skills that will likely last beyond any digital fatigue from remote teaching and learning. The moment is opportune to deepen our understanding of how the FOLC model can help design professional learning in support of enhanced DC. Certainly, many faculty attitudes and perceptions towards technology have changed, with increased interest in both professional learning initiatives and the integration of technology into teaching practice. Institutions report that it is likely that they will continue to provide a wide range of hybrid and online courses than pre-pandemic, creating a ‘new normal’ oriented more towards technology than before. As we emerge from the COVID-19 pandemic, the new normal may include more digitally forward learning opportunities, reshaping online and in person learning alike (Ali, 2020). Learners may expect greater skills with digital technologies from faculty, and faculty will need to be ready to meet these expectations.

This research has shown that existing peer-reviewed research supports the value posed by community-based models of professional learning in supporting DC development. These types of communities were important venues where faculty could support each other and build resiliency during the pivot to remote teaching and learning, and can continue to provide this support moving forward (Bolisani et al., 2020). Ontario Extend is a model professional learning initiative, and its Creative Commons license and ready availability make it an easy program to adopt and adapt, and in turn to study. The FOLC framework can be applied to understand this type of professional learning, especially as it is an embedded digital learning experience. Using

the DCP survey instrument to assess the DC of Empowered Educators provided insight into the skills they may have developed from participation in Extend. Of particular note was the high level of confidence EEs reported in regards to their technical skill, and how this differed greatly from their self-reports of their confidence levels prior to participating in Extend. Overall, they felt Ontario Extend increased their confidence in applying technology in teaching practice. Further research might confirm this confidence difference with pre- and post- assessments of the DC of participants as they begin and end the learning experience. Greater effort to use reliable survey instruments such as the DCP to conduct more reliable measurements of the impact of these types of learning will offer valuable metrics by which to better understand how to improve and align these types of learning.

This research also used anecdotal evidence to better understand the internal shifts and processes the EEs underwent in their learning. There was evidence that suggested EEs practice had changed as a result of their participation in Extend. They were more inclined to apply frameworks to assess and evaluate the suitability of tools to problems of practice, and take an iterative approach to testing potential solutions. This represented a shift from a fixed all-or-nothing mindset to a more trial-and-error perspective. These changes, and perhaps others, seem to have implications for the EEs pedagogical practice and intentions. As a result of their participation in Extend, EEs felt reconnected with students and their practice.

Most significantly, EEs felt a deep and rewarding connection with colleagues both within and outside their content areas. EEs reported the community elements of Extend as being instrumental to ongoing and informal learning activities, shown to help sustain professional learning. The community built during Ontario Extend seemed to reduce feelings of isolation and increased collaboration. Further research directions were noted, particularly in the direction of

understanding how different implementations of Extend might use community and to what comparative degree of effectiveness.

Going forward, more investment and resources can be allocated toward timely, effective and evidence-informed professional learning opportunities, such as Ontario Extend and other experiences exemplifying the FOLC model. This new digital-forward experience will require preparation through learning initiatives which really resonate for learners and develop the skills of a 21st century educator. These interviews may complement future research on the experiences of faculty participants in the Ontario Extend initiative.

References

- Ali, W. (2020). Online and Remote Learning in Higher Education Institutes: A Necessity in Light of COVID-19 Pandemic. *Higher Education Studies*, 10(3). <https://doi.org/10.5539/hes.v10n3p16>.
- Annand, D. (2011). Social presence within the community of inquiry framework. *The International Review of Research in Open and Distributed Learning*, 12(5), 40-56.
- Ardichvili, A. (2008). Learning and Knowledge Sharing in Virtual Communities of Practice: Motivators, Barriers, and Enablers. *Advances in Developing Human Resources*, 10(4), 541–554. <https://doi.org/10.1177/1523422308319536>
- Bali, M., & Caines, A. (2018). A call for promoting ownership, equity, and agency in faculty development via connected learning. *International Journal of Educational Technology in Higher Education*, 15(1), 46. <https://doi.org/10.1186/s41239-018-0128-8>
- Bandura, A. (1977). *Self-efficacy: The exercise of control*. W H Freeman/Times Books/ Henry Holt & Co.
- Bates, A.W. (2015). Chapter 8: Choosing and Using Media in Education: The SECTIONS Model. *Teaching in a Digital Age*. BCCampus. CC-BY-NC 4.0. Retrieved from: <https://opentextbc.ca/teachinginadigitalage/part/9-pedagogical-differences-between-media/>
- Bates, A.W. (2018). The 2017 National Survey of Online Learning in Canadian Post-secondary Education: Methodology and Results. *International Journal of Educational Technology in Higher Education*, 15(29). Retrieved from <https://doi.org/10.1186/s41239-018-0112-3>.
- Bates, S. P. (2014, September). The 21st Century Educator. Keynote speech at the *Symposium for Effective Teaching* presented at UOIT, Oshawa, Ontario. Retrieved from, https://www.slideshare.net/EdPER_talks/the-21st-century-educator-65570909.
- Bedford, L. (2019). Using Social Media as a Platform for a Virtual Professional Learning Community. *Online Learning Journal*, 23(3). Gale Academic OneFile, link.gale.com/apps/doc/A601763131/AONE?u=ko_acd_uoo&sid=AONE&xid=bd2b5e79.
- Bedford, L. A., & Rossow, K. A. (2017). Facilitating Professional Learning Communities Among Higher Education Faculty: The Walden Junto Model. *Online Journal of Distance Learning Administration*, 20(2), 1–12.

- Belt, E., & Lowenthal, P. (2020) Developing Faculty to Teach with Technology: Themes from the Literature. *TechTrends* 64, 248–259. <https://doi.org/10.1007/s11528-019-00447-6>
- Bielaczyc, K., & Collins, A. (1999). Learning communities in classrooms: A reconceptualization of educational practice. *Instructional-Design Theories and Models*, 2, 269–292.
- Blakeslee, Sarah (2004). The CRAAP Test. *LOEX Quarterly*, 31(3). Archived from the original on 2018-06-12. Retrieved 2018-05-28.
- Blankenship, S., Ruona, W. (2007). Professional Learning Communities and Communities of Practice: A Comparison of Models, Literature Review. Online Submission, Paper presented at the *Academy of Human Resource Development International Research Conference* in The Americas (Indianapolis, IN, Feb 28-Mar 4, 2007).
- Blayone, T. (2018). Reexamining Digital-Learning Readiness in Higher Education: Positioning Digital Competencies as Key Factors and a Profile Application as a Readiness Tool. *International Journal on e-Learning* 17(4), 425-451.
- Blayone, T., vanOostveen, R., Barber, W., DiGiuseppe, M., & Childs, E. (2017). Democratizing digital learning: theorizing the fully online learning community model. *International Journal of Educational Technology in Higher Education*, 14(1), 13. <https://doi.org/10.1186/s41239-017-0051-4>
- Blayone, T., vanOostveen, R., Mykhailenko, O., & Barber, W. (2018a). Ready for digital learning? A mixed-methods exploration of surveyed technology competencies and authentic performance activity. *Education and Information Technologies*. 23. 1377-1402. [10.1007/s10639-017-9662-6](https://doi.org/10.1007/s10639-017-9662-6).
- Blayone, T., Mykhailenko, O., vanOostveen, R., Grebeshkov, O. Hrebeshkova, O., & Vostryakov, O. (2018b). Surveying digital competencies of university students and professors in Ukraine for fully online collaborative learning. *Technology, Pedagogy and Education*, 27:3, 279-296, DOI: [10.1080/1475939X.2017.1391871](https://doi.org/10.1080/1475939X.2017.1391871)
- Bose, D., & Lowenthal, P. (2018). E-Portfolios, Course Design, and Student Learning: A Case Study of a Faculty Learning Community. *The Online Journal of New Horizons in Education*. https://scholarworks.boisestate.edu/edtech_facpubs/203
- Bragg, L., Walsh, C., Heyeres, M. (2021). Successful design and delivery of online professional development for teachers: A systematic review of the literature. *Computers & Education* 166. Retrieved from <https://doi.org/10.1016/j.compedu.2021.104158>.

- Busay, C. (2018). Leadership Styles in an Online Higher Education Setting: A Phenomenological Study of Online Professional Learning Communities [Ed.D., Concordia University (Oregon)]. Unpublished.
<https://search.proquest.com/docview/2130917381/abstract/2F4A53E99BC041F0PQ/1>
- Castellanos-Reyes, D. (2020). 20 Years of the Community of Inquiry Framework. *TechTrends* 64, 557–560. <https://doi-org./10.1007/s11528-020-00491-7>
- Cholewinski, M. (2009). An introduction to constructivism and authentic activity. *Journal of the school of contemporary international studies Nagoya University of Foreign Studies*, 5, 283-316.
- Cottom, C., Atwell, A., Martino, L., & Ombres, S. (2018). Virtual Community of Practice: Connecting Online Adjunct Faculty. *Learning Communities Journal*, 10(1). Retrieved from <https://commons.erau.edu/publication/1159>
- Cohn, J., Stewart, M., Theisen, C.H., Comins, D. (2016). Creating Online Community: A Response to the needs of 21st Century Faculty Development. *Journal of Faculty Development* 30(2). 47-56.
- Dennen, V., & Burner, K. (2008). The Cognitive Apprenticeship Model in Educational Practice. Published in *Handbook of Research on Educational Communications and Technology*, 3rd ed. [eds. Jonassen,D., et al.], p. 425-437.
- Desjardins, F. J., Lacasse, R., & Bélair, L. M. (2001). Toward a definition of four orders of competency for the use of information and communication technology (ICT) in education. In *Computers and advanced technology in education: Proceedings of the Fourth IASTED International Conference* (213-217). Calgary, AB: ACTA Press. Retrieved from <http://eilab.ca/uploads/2001/06/DesjardLacas.pdf>
- Desjardins, F. J. (2005). Information and communication technology in education: A competency profile of francophone secondary school teachers in Ontario. *Canadian Journal of Learning and Technology/La revue canadienne de l'apprentissage et de la technologie*, 31(1), 1-14.
- Dewey, J. (1916). *Democracy and Education*. New York: The Macmillan Company. Retrieved from Project Gutenberg: <https://www.gutenberg.org/files/852/852-h/852-h.htm>

- DiPasquale, J., Hunter, B., van Oostveen, R., Goodman, W., Barber, W. & DiGuiseppe, M. (2019). Assessing General Technology Competency and Use: Correlates of Confidence and Experience with a Range of Communications Devices. In J. Theo Bastiaens (Ed.), *Proceedings of EdMedia + Innovate Learning* (pp. 800-805). Amsterdam, Netherlands: Association for the Advancement of Computing in Education (AACE).
<https://www.learntechlib.org/primary/p/210080/>.
- eCampus Ontario. (2021). Ontario Extend: Professional Learning for Educators. [Infographic]. Retrieved from <https://www.ecampusontario.ca/wp-content/uploads/2022/04/Ontario-Extend-Infographic-English.pdf>
- EILab (2022). Fully Online Learning Communities. [Website]. Retrieved from <https://eilab.ca/fully-online-learning-community/#:~:text=The%20Fully%20Online%20Learning%20Community,online%20learning%20in%20higher%20education.>
- European Commission. (2006). Recommendation on key competences for lifelong learning. *Council of 18 December 2006 on key competences for lifelong learning, 2006/962/EC, L. 394/15*. Retrieved from <http://eur-lex.europa.eu/legal-content/en/TXT/?uri=CELEX:32006H0962&qid=1496720114366>.
- Ferrari, A. (2013). DIGCOMP: A framework for developing and understanding digital competence in Europe (Report EUR 26035 EN). *JRC Technical Reports*. Seville: Institute for Prospective Technological Studies, European Union.
- Flinders, D., & Thornton, S. (2013). *The curriculum studies reader*. (4th Ed.). New York: Routledge.
- Fullan, M. (2006). Change Theory – A force for school improvement. *Centre for Strategic Education*, 157, 3-14.
- Garrison, D. R. (2011). *E-learning in the 21st century: A framework for research and practice* (2nd ed.). New York: Taylor & Francis.
- Garrison, D. R., Anderson, T., & Archer, W. (2000). Critical inquiry in a text-based environment: Computer conferencing in higher education model. *The Internet and Higher Education*, 2(2-3), 87-105.

- Georgina, D., & Hosford, C. (2009). Higher education faculty perceptions on technology integration and training. *Teaching and Teacher Education*, 25(5), 690-696. <https://doi.org/10.1016/j.tate.2008.11.004>.
- Gerken, M., Beusaert, S., & Segers, M. (2016). Working on professional development of faculty staff in higher education: investigating the relationship between social informal learning activities and employability, *Human Resource Development International*, 19(2), 135-151, DOI: [10.1080/13678868.2015.1116241](https://doi.org/10.1080/13678868.2015.1116241)
- Gilster, P. (2007). *Digital Literacy*. John Wiley & Sons.
- Golden, J. (2016). Supporting online faculty through communities of practice: finding the faculty voice. *Innovations in Education and Teaching International*, 53(1), 84-93, DOI: 10.1080/14703297.2014.910129
- Greene, T. (2019). *The Open Faculty Patchbook*. Fleming College. Retrieved from <https://openfacultypatchbook.org/about-2/>.
- Hod, Y. & Bielaczyc, K. & Ben-Zvi, D. (2018). Revisiting learning communities: innovations in theory and practice. *Instructional Science*. 46. 1-18. 10.1007/s11251-018-9467-z.
- Holmes, C. M., & Kozlowski, K. A. (2015). “Tech Support”: Implementing Professional Development to Assist Higher Education Faculty to Teach with Technology. *Journal of Continuing Education and Professional Development* 2(1). pp 9-20.
- Hooks, B. (1994). *Teaching to Transgress: Education as the Practice of Freedom*. Taylor & Francis.
- Hooks, B. (2002). *Teaching Community: A Pedagogy of Hope*. Taylor & Francis.
- Hunter, W., vanOostveen, R., Goodman, W. & Barber, W. (2018). Assessing General Technology Competency and Use: Correlates of Confidence and Experience with a Range of Communications devices. *Universal Design Higher Education in Transformation Conference*, Dublin, Ireland. Retrieved from https://www.researchgate.net/publication/323994825_Assessing_General_Technology_Compentency_and_Use_Correlates_of_Confidence_and_Experience_with_a_Range_of_Communications_devices

- Hyder, N., Adcock, A., Brown, D. (2021). An Overview of Virtual Communities of Faculty Practice. *Journal of Educational Research and Practice*, 10(1), <https://doi.org/10.5590/JERAP.2020.10.1.27>.
- Jamshed S. (2014). Qualitative research method-interviewing and observation. *Journal of Basic and Clinical Pharmacy*, 5(4), 87–88. <https://doi.org/10.4103/0976-0105.141942>.
- Janssen, J., Stoyanov, S., Ferrari, A., Punie, Y., Pannekeet, K., & Sloep, P. (2013). Experts' views on digital competence: Commonalities and differences. *Computers & Education*, 68, 473–481.
- Johnson, N. (2019). *Tracking Online Education in Canadian Universities and Colleges: National Survey of Online and Digital Learning 2019 National Report*. Canadian Digital Learning Research Association.
- Johnson, N. (2020). *Digital Learning in Canadian Higher Education in 2020: Ontario Report*. Canadian Digital Learning Research Association.
- Kalir, J. H. (2018). Equity-oriented Design in Open Education. *International Journal of Information and Learning Technology*, 35(5). 357-367. <http://dx.doi.org/10.1108/IJILT-06-2018-0070>
- Kirkwood, A., & Price, L. (2013). Missing: evidence of a scholarly approach to teaching and learning with technology in higher education. *Teaching in Higher Education*, 18(3), 327–337. <https://doi.org/10.1080/13562517.2013.773419>.
- Kirkwood, A. Price, L. (2014). Technology-enhanced learning and teaching in higher education: what is 'enhanced' and how do we know? A critical literature review. *Learning, Media and Technology*, 39(1), 6-36, doi: 10.1080/17439884.2013.770404.
- Krumsvik, R.J. (2008). Situated learning and teachers' digital competence. *Education and Information Technologies* 13, 279–290. <https://doi-org./10.1007/s10639-008-9069-5>.
- Krumsvik, R. J. (2014). Teacher educators' digital competence. *Scandinavian Journal of Educational Research*, 58(3), 269–280. doi:10.1080/00313831.2012.726273
- Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*. Cambridge University Press. <https://doi.org/10.1017/CBO9780511815355>
- Le Boterf, G. (1999). Competence and Professional Navigation. *Human Resources*, 2.

- Leafstedt, J., & Pacansky-Brock, M. (2016a). Faculty development in the age of digital connected learning. *Edsurge*. Available at: <https://www.edsurge.com/news/2016-12-15-faculty-development-in-the-age-of-digital-connected-learning>
- Leafstedt, J., & Pacansky-Brock, M. (2016b). A step-by-step guide to untethered faculty development. *Edsurge*. Available at: <https://www.edsurge.com/news/2016-10-06-a-step-by-step-guide-to-untethered-faculty-development>
- Levine, A. (2022). *Bloggng as/in Discourse*. [Personal Blog.] Retrieved from <https://cogdogblog.com/2022/06/bloggng-as-in-discourse/>.
- Lopes, V., & Porter, D. (2018). *Shifting perceptions, changing practice: Ontario Extend [Report]*. eCampusOntario (Ontario Online Learning Consortium). Retrieved from <https://www.ecampusontario.ca/publication-reports/>
- Mackie, K. (2020). *Ontario Extend In Practice Report* [Research report]. Available at <https://www.ecampusontario.ca/publications-reports/>.
- Martin, F., Polly, D., Coles, S., & Wang, C. (2020). Examining higher education faculty use of current digital technologies: Importance, competence, and motivation. *International Journal of Teaching and Learning in Higher Education*, 32(1), 73-86.
- Mckenna, A., Johnson, A., Yoder, B., Chavela Guerra, R., Pimmel, R. (2016). Evaluating Virtual Communities of Practice for Faculty Development. *The Journal of Faculty Development*, 30(1), pp. 31-40.
- McClelland, D. C. (1973). Testing for competence rather than for "intelligence." *American Psychologist*, 28(1), 1–14. <https://doi.org/10.1037/h0034092>
- Moser, J. (2018). *The Distance, Diminished: An Exploratory Study of a Fully Online Professional Learning Community in Higher Education*. Unpublished. ProQuest Dissertations Publishing.
- Murray-Johnson, K. (2014). "Faculty Professional Development – A Virtual Reality?" A Critical Literature Review of Online Communities of Practice in Post- Secondary Settings." *Adult Education Research Conference*. <https://newprairiepress.org/aerc/2014/papers/53>
- Ng, W. (2015). Adopting New Digital Technologies in Education: Professional Learning. *New Digital Technology in Education*. Springer, Cham. https://doi-org/10.1007/978-3-319-05822-1_2

- Nicholls, G. (2000). Professional development, teaching, and lifelong learning: the implications for higher education. *International Journal of Lifelong Education*, 19(4). 370-377, DOI: 10.1080/02601370050110419
- Nolin, A. P. (2014). *Framing innovation: Do professional learning communities influence acceptance of large-scale technology initiatives?* (Order No. 3616714). Unpublished. Available from ProQuest Dissertations & Theses Global. (1526290305). <http://search.proquest.com/dissertations-theses/framing-innovation-do-professional-learning/docview/1526290305/se-2?accountid=14694>
- Patton, K., & Parker, M. (2017). Teacher education communities of practice: More than a culture of collaboration. *Teaching and Teacher Education* 67. 351-360. ISSN 0742-051X, <https://doi.org/10.1016/j.tate.2017.06.013>.
- Puentedura, R. R. (2013, May 29). SAMR: Moving from enhancement to transformation [Web log post]. Retrieved from <http://www.hippasus.com/rrpweblog/archives/000095.html>
- Racine, L., Springer, R., & Udod, S. (2013). Distributed learning and rapid technological change: An exploration of faculty development needs. *International Journal of University Teaching and Faculty Development*. 3. 1-15.
- Richmond, N. (2014). *Digital ethnography: Understanding faculty use of an online community of practice for professional development*. (Order No. 3617808). Unpublished. Available from ProQuest Dissertations & Theses Global. (1528550100). Retrieved from <http://search.proquest.com/dissertations-theses/digital-ethnography-understanding-faculty-use/docview/1528550100/se-2?accountid=14694>
- Schmid, R., Bernard, R., Borokhovski, E., Tamim, R., Abrami, P., Surkes, M., Wade, C., Woods, J. (2014). The effects of technology use in postsecondary education: A meta-analysis of classroom applications. *Computers & Education*, 72. 271-291. Doi: <https://doi.org/10.1016/j.compedu.2013.11.002>.
- Senge, P. (2006). *The fifth discipline: the art and practice of the learning organization* (Revised ed.). New York: Currency/Doubleday. ISBN 0385517254. OCLC 65166960.
- Shea, P., & Bidjerano, T. (2009). Community of inquiry as a theoretical framework to foster “epistemic engagement” and “cognitive presence” in online education. *Computers & Education*, 52, 543-553.

- Sheffield, R., Blackley, S., Moro, P. (2018). A Professional Learning Model Supporting Teachers to Integrate Digital Technologies. *Issues in Educational Research*, 28(2).
- Soto, M., Gupta, D., Dick, L., & Appelgate, M. (2019). Bridging Distances: Professional Development for Higher Education Faculty Through Technology-Facilitated Lesson Study. *Journal of University Teaching & Learning Practice*, 16(3).
<https://doi.org/10.53761/1.16.3.7>
- Spante, M., Sofkova Hashemi, S., Lundin, M., & Algiers, A. (2018). Digital competence and digital literacy in higher education research: Systematic review of concept use. *Cogent Education*, 5(1), DOI: [10.1080/2331186X.2018.1519143](https://doi.org/10.1080/2331186X.2018.1519143)
- Steinert, Y., Mann, K., Anderson, B., Barnett, B.M., Centeno, A., Naismith, L., Prideaux, D., Spencer, J., Tullo, E., Viggiano, T., Ward, H., Dolmans, D. (2016). A systematic review of faculty development initiatives designed to enhance teaching effectiveness: A 10-year update: BEME Guide No. 40. *Medical Teacher*, 38(8), 769–786.
<https://doi.org/10.1080/0142159X.2016.1181851>
- Stewart, C. (2014). Transforming Professional Development to Professional Learning. *Journal of Adult Education*, 43(1).
- Tam, M. (2000). Constructivism, instructional design, and technology: Implications for transforming distance learning. *Educational Technology & Society*, 3(2), 50-60.
- Trust, T., Carpenter, J., Krutka, D. (2017). Moving beyond silos: professional learning networks in higher education. *The Internet and Higher Education*, 35. 1-11,
<https://doi.org/10.1016/j.iheduc.2017.06.001>.
- van Dijk, E., van Tartwijk, J., van der Schaaf, M., Kluijtmans, M. (2020). What makes an expert university teacher? A systematic review and synthesis of frameworks for teacher expertise in higher education. *Educational Research Review* 31,
<https://doi.org/10.1016/j.edurev.2020.100365>.
- vanOostveen, R. (2020). Using Digital Technology and Fully Online Readiness Surveys to Develop Skills and Competencies. In *Disruption in and by Centres for Teaching and Learning During the COVID-19 Pandemic: Leading the Future of Higher Ed*. by ed. Naffi, N. International Observatory on the Societal Impacts of AI and Digital Technology. Retrieved from <https://www.docdroid.com/L0khasC/whitepaper-disruption-in-and-by-centres-for-teaching-and-learning-during-the-covid-19-pandemic-leading-the-future-of-higher-ed-21-08-2020-pdf>

- vanOostveen, R., Desjardins, F., & Bullock, S. (2019). Professional development learning environments (PDLEs) embedded in a collaborative online learning environment (COLE): Moving towards a new conception of online professional learning. *Education and Information Technologies*, 24(2), 1863–1900. <https://doi.org/10.1007/s10639-018-9686-6>.
- vanOostveen, R., DiGiuseppe, M., Barber, W., Blayone, T. & Childs, E. (2016). New conceptions for digital technology sandboxes: Developing a Fully Online Learning Communities (FOLC) model. In Proceedings of EdMedia: World Conference on Educational Media and Technology 2016 (pp. 672-680). Association for the Advancement of Computing in Education (AACE), June 29, 2016, Vancouver, B.C. Retrieved from <https://www.learntechlib.org/primary/p/173015/>
- vanOostveen, R., Muirhead, W. & Goodman, W. (2011). Tablet PCs and reconceptualizing learning with technology: a case study in higher education. *Interactive Technology and Smart Education*, 8. 78-93. 10.1108/17415651111141803.
- Vygotsky, L. S. (1962). *Thought and language*. Cambridge, MA: MIT Press.
- Webster-Wright, A. (2009). Reframing Professional Development through Understanding Authentic Professional Learning. *Review of Educational Research* 79(2), 702-739.
- Wenger, E. (1998). Communities of practice: Learning as a social system. *Systems Thinker*. <https://thesystemsthinker.com/communities-of-practice-learning-as-a-social-system/>
- Wenger, E. (2011). *Communities of Practice: a Brief Introduction*. New York, NY: MacMillan.
- Wenger, E., Trayner, B., & de Laat, M. (2011). Promoting and assessing value creation in communities and networks: a conceptual framework. Rapport 18, Ruud de Moor Centrum, Open University of the Netherlands.
- Wenger-Trayner, E., & Wenger-Trayner, B. (2021). *Introduction into Communities of Practice*. Retrieved December 7th, 2021 from <https://wenger-trayner.com/introduction-to-communities-of-practice/#:~:text=Communities%20of%20practice%20are%20groups,better%20as%20they%20interact%20regularly.>
- Wynants, S., & Dennis, J. (2018). Professional development in an online context: Opportunities and challenges from the voices of college faculty. *Journal of Educators Online*, 15(1).

Xin, C. (2012). A Critique of the Community of Inquiry Framework. *International Journal of E-Learning & Distance Education / Revue Internationale Du E-Learning Et La Formation à Distance*, 26(1). Retrieved from <https://www.ijede.ca/index.php/jde/article/view/755>