Capacity development through digital informal learning experiences:

An exploration of the entrepreneurial competency development of

self-employed Canadian mothers using a learning ecologies framework

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Dedication

To my Fantastic Four: Kaleb, Micah, Erin, and Theo.

It was, and is, always all for you.

Bibliographical Sketch

Nicole Johnson is the Research Director of the Canadian Digital Learning Research Association (CDLRA). In this role, she develops and leads research projects that investigate the status and growth of online and digital learning at post-secondary institutions across Canada. She also designs ongoing 'pulse' studies to track the impact of the COVID-19 pandemic on Canadian faculty and institutions. Nicole is involved in similar projects in the U.S.A., working as a Research Associate for Bay View Analytics (formerly the Babson Survey Research Group) under the leadership of Dr. Jeff Seaman. Additionally, she is part of a research team at Royal Roads University (Victoria, Canada) under the supervision of Dr. George Veletsianos.

Prior to her PhD studies, Nicole received a Master of Educational Technology degree (2014) from the University of British Columbia (UBC). She also holds a Bachelor of Education degree (2001) and a Bachelor of Human Kinetics degree (2000), both earned at UBC. Between the achievement of her undergraduate degrees and the pursuit of her graduate studies, Nicole worked as an elementary and middle school teacher.

PhD-Related Publications

Johnson, N. (2020). Mitigating the motherhood penalty through digital informal learning: The learning experiences of Canadian entrepreneurs who are mothers. *Gender and Education* [under review]

*Christen, N., Sangrà, A., & González-Sanmamed, M. (2016, October). Supporting the capacity development of Canadian entrepreneurial mothers through an exploration of their digital learning ecologies. In *Forging new pathways of research and innovation in open and*

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(*Note a change in last name from Nicole Christen to Nicole Johnson in 2017.)

Other Journal Publications

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*Nicole Johnson also authored all the Regional Reports (Ontario, Québec, Atlantic, and

Western) for the 2019 CDLRA National Survey. These publications can be found at

http://www.cdlra-acrfl.ca/publications/

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Abstract

Motherhood tends to negatively impact workforce participation due to competing work-family demands. Many Canadian women opt out of the traditional workforce and pursue self-employment during the motherhood years to create flexible working conditions for themselves. Although there is ample literature on the motherhood penalty and female entrepreneurship, little research exists on the development of entrepreneurial competencies among self-employed women who are mothers from an educational standpoint. Further, there is a gap in the research as to how digital learning to develop entrepreneurial competencies impacts capacity development. An interpretivist paradigm and an ethnographic approach guided the design of a mixed-methods research study, which focused on the learning experiences of 47 Canadian entrepreneurs who are mothers. The study investigated how participants used digital technology to develop the competencies necessary to establish and sustain a business. A learning ecologies framework was used in the design and analysis of the study to address the multidimensionality and complexities of individual learning experiences and the overall learning culture of the sample.

The study commenced with an original quantitative survey, designed based on the theoretical foundations of the study, and the researcher administered the survey through one-on-one structured interviews conducted by videoconference. Four survey participants were then selected as case studies and participated in a second, semi-structured interview. The findings showed that the demands of motherhood influenced the learning culture of participants: learning was primarily informal and occurred in digital contexts, affording flexible learning experiences based on self-identified needs. Participants also activated different learning contexts to differing extents. Notably, contexts that facilitated relational learning experiences (e.g. social media or using technology for one-on-one conversation) were activated to a greater extent. Competency

development also varied from context to context and was not well-rounded. For instance, participants frequently activated contexts to develop business relationships, the ability to come up with new ideas and innovations, and the ability to take advantage of new opportunities. Conversely, few participants reported activating contexts to develop human resource competencies associated with hiring and managing others. The findings also indicated that participants' digital learning experiences positively impacted their capacity development. Ultimately, the study determined that the learning ecologies of participants were complex, digital informal learning experiences were predominant, and flexible learning was important.

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Introduction

"Motherhood is the unfinished business of feminism."

-Andrea O'Reilly, *The Motherload* (Principe & Culbert, 2014)

Digital technology holds the potential for creating flexible and accessible learning experiences that advance capacity development. This research study focuses specifically on investigating the digital learning experiences and the digital learning culture of Canadian entrepreneurs who are mothers as they seek to develop business skills, also referred to as entrepreneurial competencies.

Ample evidence exists to show that the experience of motherhood has a negative impact on the capacity development of women worldwide. To address their need for increased workplace flexibility, many women leave the traditional workforce when they become mothers and pursue self-employment as an alternative (Craig & Powell, 2012; Jennings & Brush, 2013). The success of these entrepreneurial ventures is a critical aspect of capacity development for these women in order to strengthen their economic advantage while affording the ability to perform meaningful and fulfilling work.

Education is a central tenet of capacity development; however, female entrepreneurs are more likely to have transitioned to entrepreneurship and less likely to have taken formal entrepreneurship education (e.g. college or university programs) to develop the requisite competencies that will increase their likelihood of business success (Orser, 2007; Thomson, 2018). There is also evidence that female entrepreneurs in Canada may instead utilize digital contexts to informally educate themselves about what is needed to succeed in their business ventures (Thomas & Moisey, 2006).

This study provides insight as to how Canadian mothers who are entrepreneurs activate digital contexts through self-education processes to develop entrepreneurial competencies. Along with exploring competency development, this study also investigates the impact of such learning experiences on capacity development overall. Thus, a key objective of this study is to investigate the potential of digital learning opportunities to support the capacity development of Canadian entrepreneurs who are mothers.

Research Problem

In her book, *Unfinished Business*, Slaughter (2015) contended that devaluing caregiver roles in society, along with inflexible working conditions for those on whom caregiving responsibilities fall, creates an economic disadvantage that is primarily felt by women. *The Motherload*, a documentary by Principe and Culbert's (2014), argued that North American mothers experience a pervasive sense of overwhelm: mothers experience pressure to keep up with societal expectations for parenting while managing the demand to be productive workers. Lost wages and a reduced income, referred to as the *motherhood penalty* (Gough & Noonan, 2013), may result from these competing demands on a mother's time and energy.

While Facebook COO, Sheryl Sandberg has challenged women to 'lean in' to overcome the gender wage disparity (Sandberg, 2015), others have argued that the underlying causes of the gender wage gap are more complex (Goldin, 2014; Slaughter, 2015). For instance, Goldin (2014) stated, "the gap exists because hours of work in many occupations are worth more when given at particular moments and when the hours are more continuous" (p. 1116). Further, Kawash (2011) highlighted the intrinsic value of the motherhood experience for women, suggesting that a woman's desire to be involved in a large portion of her child's care should be addressed when developing solutions for increasing her economic prosperity. For many women, the desire to earn

an income while providing primary care for their children has resulted in them leaving the

inflexible conditions of the traditional workforce to pursue entrepreneurship (Goldin, 2014; Jean

& Forbes, 2012).

According to Hughes (2018), "Canada has become a leader in women's entrepreneurship,

with some of the highest activity rates amongst innovation-based economies" (p. 4). The

Canadian government also appears highly invested in developing capacity development

initiatives for female entrepreneurs, having previously commissioned an expert panel to explore

how to increase mentorship and championing for female entrepreneurs (Dickinson et al., 2015).

Significant funding is being made available for such initiatives, such as the announcement by the

Canadian Minister of Small Business and Tourism that the Business Development Bank of

Canada (BDC) would launch a forty-million dollar internal fund to help women entrepreneurs

raise capital (Government of Canada, 2016). Thus, research within the Canadian context is

timely in order to better understand the experiences of female entrepreneurs and to maximize the

success of existing and forthcoming initiatives.

While it is recognized that female entrepreneurs are valuable to the Canadian economy

and that initiatives to enhance their success are a priority, a gap exists when looking at the issue

from an educational perspective. Although some female entrepreneurs have taken formal

business training (Thomson, 2018), studies exploring entrepreneurship and motherhood

indirectly signal that this is not the case for female entrepreneurs who decide to start a business

to create flexible work for themselves in response to parenting demands (Cheraghi & Schøtt,

2015; Hughes, 2005; Fleck, 2015). How, then, are these women developing the skills they need

in order to successfully operate a business?

Despite there being a dearth of research at the nexus of entrepreneurship, motherhood, and education, there is some indication in the literature that entrepreneurial competency development among this group is primarily informal and that digital learning contexts are preferred (Thomas & Moisey, 2006). According to Johnson (2019), the prevalence of online offerings is increasing in formal higher education contexts in Canada and there is evidence of experimentation with non-formal online offerings such as alternative credentials (e.g. badges, microcredentials) among Canadian post-secondary institutions. One can speculate that the growth in formal and non-formal online offerings in Canada is indicative of increasing comfort levels with learning online that translates to informal learning experiences as well.

To create effective capacity development initiatives for female entrepreneurs, it is important to gain an in-depth understanding of how they tend to develop entrepreneurial competencies and the barriers that they experience. Further, since many female entrepreneurs are mothers, understanding how the motherhood penalty shapes entrepreneurial learning experiences is essential. Thus, this study employs an ecological approach to better understand the multidimensional nature of entrepreneurial competency development within the motherhood context. Through an investigation of the digital learning culture of Canadian entrepreneurs who are mothers, this study provides recommendations for enhancing learning initiatives for entrepreneurs who are mothers going forward.

Key Terms

A shared understanding of the key terms used throughout the description and discussion of this study is important. In this section, the key terms that represent the pillars of the study are briefly defined. Further operationalization of these terms can be found in Chapter 1 (Theoretical Framework) of the thesis.

Capacity Development

The objective of capacity development is to help an individual make progress towards the experience of self-actualization: engaging in the work and activities that are the best fit for an individual when they are operating at their full potential (Maslow, 1943). Capacity development, itself, is a process by which capabilities are maintained and strengthened to support an individual (or an organization) toward the achievement of self-determined social and economic goals (CADRI, n.d.; Heylighen, 1992; Oshana, 1998; United Nations, 2009).

Entrepreneurship in the Motherhood Context

This study uses the definition of entrepreneurship provided by the Global Entrepreneurship Monitor (GEM), which is "any attempt at a new business or venture creation such as self-employment, a new business organization, or the expansion of an existing business, by an individual, a team of individuals, or an established business" (Gregson et al., 2018, p.10). Additionally, for the purposes of this study, a 'mother' is defined as a self-identified woman who is in a parenting relationship (e.g., biological mother, adoptive mother, stepmother). While we know that the role of a mother is lifelong, this investigation focuses exclusively on women who are actively parenting children and teens (under age 18) who reside with them on a full or part-time basis (such as shared custody post-divorce).

Before proceeding further, the debate surrounding the label 'mumpreneur' must also be acknowledged. Gabaldon et al. (2015) define 'mumpreneurship' as "women-based ventures being carried out around the daily day tasks of Motherhood" (p.140). Ekinsmyth (2014) specifically addresses the contention this label raises, with some women embracing this term while others declaring that it undermines their credibility as an entrepreneur. While the debate

behind the term 'mumpreneur' is beyond the scope of this article, cognizance of this debate is important to ensure that respectful and inclusive semantics are used, in which motherhood is simply positioned as a unique context. For this reason, the term 'mumpreneur' will be avoided in the forthcoming dialogue to recognize the heterogeneity that exists in terms of identity among mothers who are pursuing entrepreneurship. Throughout the thesis, the population being investigated will be referred to as *Canadian entrepreneurs who are mothers*.

Informal Learning

According to Livingstone (2012), learning experiences are typically cast into three categories: formal learning (for-credit learning that occurs within formal setting such as K-12 or post-secondary institutions), non-formal learning (instructor-led activities that are not for credit), and informal learning (non-prescriptive learning). Informal learning encompasses both intentional (self-directed) and unintentional (incidental and tacit) learning experiences (Schugurensky, 2000).

Learning Ecologies

This study used a learning ecologies framework to understand the complexity and multidimensionality of the learning experiences of Canadian entrepreneurs who are mothers. An individual's learning ecology encompasses the whole of their ongoing learning experiences and includes sets of contexts in which an individual activates learning activities, learning resources, and learning relationships (Barron, 2004; Barron, 2006; Jackson, 2013; Sangrà et al., 2019). Both the experiences and disposition of an individual influence the development of their learning ecology (González-Sanmamed et al., 2019). Occurrences outside of an individual's control as well as the overall culture in which they exist also impact their learning ecology (Bronfenbrenner, 1979).

Research Questions

This research study investigated the digital learning culture of Canadian entrepreneurs who pursue entrepreneurship within the motherhood context. The following research questions guided the investigation:

- In what ways do the digital learning experiences of participants illustrate the common elements of their collective learning ecologies?

- What factors benefit or hinder the potential of digital informal learning within the learning ecologies of participants?

- How do participants' digital learning experiences impact their capacity development?

Research Design

A mixed design strategy was used to explore the digital learning ecologies of Canadian entrepreneurs who are pursuing entrepreneurship within the context of motherhood. Specifically, this study applied a learning ecologies framework to explore whether and how Canadian entrepreneurs who are mothers are activating digital informal learning experiences, related to the development of entrepreneurial competences, and the influence of these experiences on capacity development. First, a quantitative survey was delivered through a structured interview format to 47 participants. Next, four participants, representing typical and critical cases (identified through the quantitative analysis) were selected for a second interview to gather descriptive and explanatory data. The results of the study offer insight as to how to improve future learning experiences for Canadian entrepreneurs who are mothers to enhance the advancement of capacity development.

Chapter 1: Theoretical Framework

The motherhood penalty is a complex sociological phenomenon and the body of research related to this phenomenon is robust. In this chapter, the contributing factors to the motherhood penalty are identified, the term capacity development is operationalized, and entrepreneurship is presented as a strategy to mitigate the motherhood penalty. Existing research on female entrepreneurship within the Canadian context is specifically addressed. Further, the process of learning how to be an entrepreneur is delineated, particularly as it relates to informal learning. Lastly, learning is conceptualized using an ecological framework and the application of such a framework as an analysis tool for the study is explained.

Understanding the Motherhood Penalty

Mothers represent a particular subset of the population for whom workforce participation is made complex by a myriad of issues. Major issues at the crossroads of motherhood and workforce participation include self-sacrifice among mothers to mitigate constraints surrounding child care (Horne & Breitkreuz, 2016), the intrinsic value that mothers experience in terms of caring for their children (Kawash, 2011), and the need for flexible work hours to better accommodate the tension between the demands of a career and the demands of motherhood (Goldin, 2014). The *motherhood penalty* occurs when the demands of parenthood create fragmentation and discontinuity with regard to professional training and career development (Goldin, 2014; Slaughter, 2015).

Early studies on the motherhood penalty explored data related to women and their earnings to provide evidence for the existence of the motherhood penalty. Waldfogel (1997) found that even when controlling for career-related experience, having children had a negative effect on women's wages. Budig and England (2001) investigated the relationship between

motherhood and lower wages. They offered five explanations for the motherhood penalty: work experience is interrupted by caregiving, mothers may give up higher-paying work for a 'family-friendly' job, the energy of caregiving may negatively impact mothers' productivity, mothers may experience discrimination from employers, and that there may be non-causal individual characteristics that are inherently associated with lower earnings and higher rates of childbearing. Avellar and Smock (2003) reported that the motherhood penalty was persistent over time and that it was compounded with each additional child.

More recent studies have investigated whether and to what extent the motherhood penalty exists nearly two decades later. Boye et al. (2017) explored the gender wage gap in Sweden from 1974 to 2010. Overall, they found that the gender wage gap had remained relatively unchanged. Byker (2016) examined data from 1984 to 2012 on women's career interruptions related to birth. She reported that the trend to opt-out of the workforce to care for children has been stable over the past 30 years and that "substantial and sustained career interruptions remain common for mothers in all educational categories" (p. 1). Considering that the motherhood penalty is a pervasive and persistent issue, what are its driving forces?

Many studies have been conducted to expand upon, and investigate in more depth, the contributing factors to the motherhood penalty. One theme that is prominent within the literature is that parenthood drives a need for flexibility. Working atypical hours and working from home are strategies mothers use to accommodate family-related demands (including managing domestic work) with workforce participation (Craig & Powell, 2012). In the parenthood context, a father's work tends to be an immovable point while a mother makes adjustments to her work in relation to family demands (Killewald & García-Manglano, 2016). While the lopsided impact of parenthood on mothers' work hours versus those of fathers is reflective of deeper systemic issues

that are beyond the scope of this study, facilitating work flexibility for mothers is critical to reducing the motherhood penalty. According to a study of Canadian women by Fuller and Hirsh (2019), the ability to work flexible hours mitigated the motherhood penalty, particularly among highly educated women.

Other factors that contribute to the motherhood penalty include work-family policies and a women's identity as a mother. Family-friendly benefits in places of employment help keep women in the workforce at the onset of motherhood and, particularly, as her family grows (Baird & Burge, 2018). Women's earnings increase when family-friendly policies are in place (Boushey, 2008), including policies related to paternity leave. Andersen (2018) found that paternity leave contributed not only to an increase in a mother's wages but to an increase in total household income. At the same time, it's important to note that an identity shift, and a subsequent shift in attitudes toward the adoption of traditional gender roles, may occur at the onset of motherhood (Baxter et al., 2015). It is important to note that women who have received high levels of professional education still sometimes choose the roles of wife and mother over a professional career, and children are a key factor related to gaps in workforce participation (Goldin, 2006). This potential change in priorities, which may include a reduced work commitment, tends to be most prominent in the early childhood years (Evertsson, 2013).

Within the literature related to the motherhood penalty, numerous authors have recognized that the magnitude of the motherhood penalty is also influenced by intersectional factors. The body of research addresses how the motherhood penalty may be experienced differently depending on race, sexual orientation, occupation, level of education, and income (Amuedo-Dorantes & Kimmel, 2005; Anderson et al., 2002; Baumle, 2009; Budig & Hodges, 2010; Buchmann & McDaniel, 2016; Budig & Hodges, 2014; Bütikofer et al., 2018; England et

al., 2016; Gafni & Siniver, 2015; Glauber, 2007; Greenman, 2011). Family structure (e.g. partner support, divorce and single motherhood, and the number of children), the timing of motherhood, and family values may also impact the magnitude of the motherhood penalty (Bröckel, 2018; Christopher et al., 2002; Cools et al., 2017; Glass & Nath, 2006; Gough, 2017; Harkness, 2016; Killewald, 2016; Miller, 2011; Putz & Engelhardt-Wölfler, 2014). Although it is beyond the scope of this study to explore these factors in-depth, it is important to maintain awareness that each woman has a unique set of circumstances that have influenced how she has experienced the motherhood penalty. Yet, while the motherhood penalty may be experienced differently by different groups, it is a universal phenomenon. When reflecting upon her own desires to have children, and her subsequent exploration of the impact it would have on her life, Kawash (2011) wrote, "no matter your age, race, income, education, or position, becoming a mother meant a decrease in autonomy, economic security, health, and happiness" (p.970).

Understanding Capacity Development

Ultimately, the motherhood penalty is a capacity development issue. The experience of motherhood creates the condition of family embeddedness, in which a woman alters her circumstances and makes choices based on the overall needs of her family unit (Hughes et al., 2012; Fleck, 2015; Jean & Forbes, 2012; Jennings & Brush, 2013; Kamberidou, 2013). This sense of family duty, likely accompanied by a genuine desire to be a strong presence in the life of her children (Kawash, 2011), creates unique conditions that negatively impact a woman's economic capacity during her motherhood years.

Capacity development refers to a process that occurs at an individual, organizational, and societal level (OECD, 2006) where *capabilities* are stimulated, developed, strengthened, and maintained over time through knowledge, skills, systems, and institutions for the purpose of

achieving social and economic goals (CADRI, n.d.; United Nations, 2009). This research study explores capacity development at the level of the individual.

At the individual level, capacity development occurs when one experiences *self-actualization*, which is defined as *doing what we are fitted to do* and is the highest level on Maslow's (1943) hierarchy of needs. In her critique of Maslow's work, Heylighen (1992) redefined self-actualization as an ongoing process that includes personal autonomy, stating that those who are experiencing self-actualization, "make their decisions for themselves, without having to rely on the opinions of others, or on the rules, conventions, and values imposed by society" (p. 43). In other words, an autonomous person holds the authority to independently determine her own actions, preferences, and values and to direct her life accordingly (Oshana, 1998). Therefore, for the purpose of this study, capacity development at the individual level is defined as the development, strengthening, and maintenance of an individual's *capabilities* to support autonomous choice leading to the experience of self-actualization. Thus, capacity development not only involves helping mothers gain the economic means to meet their basic needs, but goes beyond this to support mothers in establishing careers through which they experience self-actualization (Khan & Phule, 2015).

Investigating Capacity Development Through a Poststructural Feminist Lens

To explore the capacity development of mothers who pursue entrepreneurship, an understanding of the theoretical underpinnings of the field of female entrepreneurship is critical. Rather than having roots in mainstream entrepreneurship research, Jennings and Brush (2013) situated female entrepreneurship research as having its origins in gender and occupations theory and feminist theory. Ahl (2006) challenged the gendered connotations within mainstream entrepreneurship research, stating that these have led to inaccurate depictions of female

entrepreneurs. She pointed out that the idealistic identity of an entrepreneur, put forth by

Schumpeter (1934/1983), has masculine characteristics.

Additionally, Marlow (2014) noted the widespread use of *gender as a variable* (GAV) in

mainstream entrepreneurship research. She described how, over time, this has positioned female

entrepreneurs as deficient or lacking when compared with their male counterparts. Thus, in order

to accurately measure capacity development among women, it is imperative to be mindful of

how the methodology may lead to faulty interpretations of women's experiences. Marlow further

explained that there is an assumption of gender neutrality in past entrepreneurship studies when,

in fact, the norms associated with entrepreneurship favor masculinity. The status quo of

mainstream entrepreneurship research continually perpetuates results that devalue a feminine

approach to entrepreneurship and drive the perception that female entrepreneurs need to be fixed

if they do not embody the characteristics and desires of a stereotypical masculine entrepreneur.

Essential to this reform, she argued against male-female comparative studies (where gender is a

variable) and recommended studies that use gender as a lens to explore heterogeneity within

different contexts.

The application of a poststructural feminist lens to entrepreneurship research was put

forth by Ahl (2006) as a critical approach for conducting further studies. She defined

poststructural feminism as a position that views gender as a socially constructed phenomenon,

referring to perceptions of masculinity or femininity, rather than a biological descriptor. Without

the application of a poststructural feminist lens, Ahl (2006) argued that women are perceived to

underperform and are labeled as having a problem for not fitting within masculine constructs

related to entrepreneurial success. She called for a shift away from research approaches that

employ an objectivist epistemology, measuring females against males, including gendered

measuring instruments and interpretations that place constructs or characteristics associated with masculinity as measures of success.

Selecting Measures of Capacity Development

Jennings and Brush (2013), Marlow (2014) and Henry et al. (2016) provided comprehensive reviews of the existing body of research on female entrepreneurship, highlighting the methodologies used. Collectively, their reports illustrate that gendered constructs associated with the notion of success within entrepreneurship, comparative studies measuring females against males, and lack of attention to contextual factors continue to cause concern. Each of these three articles argued for an increased awareness of research practices that position masculinity as the norm, calling for a change in methodology to gain a more accurate depiction of female entrepreneurs going forward. Thus, any measure of capacity development should be carefully selected to avoid gendered biases that have the potential to skew the results unfavorably toward women.

As a foundation for an appropriate measure of capacity development, Robeyns (2003) specified capabilities that an individual should experience in ideal circumstances. Considering that her list of ideal capabilities is focussed on assessing gender inequalities, using her work as the foundation for the capacity development section of the survey is aligned with the application of post-structural feminist lens to avoid measuring entrepreneurial success through androcentric constructs (e.g. business revenue, business size). She generated a list of ideal capabilities based upon Sen's (1979) capability approach which "postulates that when making normative evaluations, the focus should be on what people are able to be and do, and not on what they can consume or on their incomes" (Robeyns, 2003, p. 62). In order for one to be in a position to work toward their full potential, Robeyns stated that the following capabilities are necessary: the

ability to be physically healthy, the ability to be mentally healthy, the ability to be safe, being

part of social networks, giving and receiving social support to or from others, participating in

politics, the ability to acquire knowledge, the ability to be a caregiver without negative

consequences, receiving fair compensation for one's work, and the ability to live in a pleasant

environment.

Entrepreneurship to Mitigate the Motherhood Penalty

Women often require flexibility in terms of both time and location to balance a career and

family. Motivating factors for entrepreneurship during the motherhood years include the desire

to participate in meaningful work (Johnstone & Lee, 2016; Lewis et al., 2015) and a lack of

desirable and flexible employment options (Lewis et al. 2015; Thébaud, 2015; Tlaiss, 2015). To

remain in the workforce and to mitigate the economic disadvantage of motherhood, many

working mothers choose entrepreneurship because of the flexibility it offers in terms of work-

family balance such as non-standard work hours and working from home (Craig & Powell, 2012;

Jennings & Brush, 2013). By pursuing entrepreneurship, the potential exists for a woman to earn

an income (in an occupation) that provides personal satisfaction while having the flexibility to

manage the caregiving demands of motherhood.

Aldrich and Cliff (2003) asserted that family systems and dynamics are pervasive as they

relate to entrepreneurial pursuits. Whether it be in how a mother defines her success as an

entrepreneur (Gabaldon et al., 2015; Kirkwood, 2016) or balances and prioritizes her family

responsibilities with her business responsibilities (Teague & Smith, 2015; Vincent, 2016),

parenting demands appear to impact many aspects of her journey as an entrepreneur. Women

with financial security, through the income of a spouse, may be more likely to pursue

entrepreneurship in dual-career families to navigate parenting demands with their desire to

participate in meaningful work (Guo & Werner, 2016). In addition, Thébaud (2016) noted that women may choose entrepreneurship as a fallback career strategy when they feel unable to find a suitable employment option that supports their caregiving responsibilities.

As an example, Lewis et al. (2015) conducted a longitudinal case study exploring the role of motherhood in the transition from traditional employment to self-employment among four New Zealand women. The participants in their study reported lack of flexibility in their former jobs and child care challenges as motivators for self-employment versus returning to their former career. At the same time, the participants expressed dissatisfaction with the notion of a mother-only role and sought to combine their identity as a mother with a career identity as well.

Conversely, Fleck (2015) reported that women may intentionally choose to limit the growth of their business in order to have more flexibility and to spend more time with their family and highlighted the impact of family embeddedness. She questioned whether smaller business growth, a trend among female entrepreneurs, is a matter of choice. Her results provided insights showing that both barriers and empowered choice restrict business growth among women. The barriers that Fleck (2015) stated are childcare, guilt related to balancing the demands of work with parenthood, difficulty delegating, lack of confidence, feeling inferior because of their gender, and lack of leadership skills, managerial skills, and/or business acumen. She discovered that some women do appear to choose to cap the growth of their business during certain stages of life, or during certain stages of the business cycle, to achieve a more desirable level of work-family balance.

Female Entrepreneurship in the Canadian Context

Research specific to female entrepreneurship in Canada is limited. Several Canadian studies affirm that the motherhood penalty and the tensions between work and parenting

demands are applicable to the Canadian context (Blain, 1993; Fuller & Hirsh, 2019; Hilbrecht, 2016; Horne & Breitkreuz, 2016; Moyser, 2017). In her report for Statistics Canada titled *Women and Paid Work*, Moyser (2017) reported that the employment rate of Canadian women is related to the age of their youngest child and that employment rates among Canadian women increased as their children became older. She noted that Canadian women are also more likely to engage in part-time work and to have career interruptions, likely as a result of caregiving demands. Specific to entrepreneurship, she stated that female entrepreneurs were less likely than their male counterparts to have an incorporated business or paid help. She added that female entrepreneurs in Canada had a stronger presence in the service industry than the goods-producing sector.

Reports such as the Global Entrepreneurship Monitor (GEM) also provide insight into the female entrepreneurship landscape within the Canadian context. For example, the 2018 GEM Canada Report stated that the rates of total early-stage female entrepreneurs in Canada have increased since 2016 and that, compared to Canadian men, women are more frequently engaging in entrepreneurial activity out of opportunity versus necessity (Gregson et al., 2018). The authors added, "Canadian women appear to have very positive attitudes toward entrepreneurship, particularly with respect to perceiving opportunities to start a business and perceiving they have the necessary skills and experience" (p.40).

In 2014, a government-commissioned expert panel consulted with female entrepreneurs across Canada to explore how to increase mentorship and championing for this group (Status of Women Canada, n.d.). The findings of their report indicate "a lack of resources, especially in the areas of mentorship, information and capital, challenge and threaten the future prospects of Canada's women entrepreneurs" (Dickinson et al. 2015, p. 1). Included in their proposed

solutions are the establishment of an online hub (for accessing information, resources, and connecting with programs and mentors), the development of a networking tool that would connect women to experts in their field, and increasing the body of knowledge surrounding the best way to support and develop the capacity of female entrepreneurs (Dickinson et al., 2015).

Considering the identified need for resources, mentorship, and information, the lack of research exploring the learning needs of female entrepreneurs is notable. In her Canadian-focussed research study on female entrepreneurs, Hughes (2005) argued for programs that are relevant to work-family entrepreneurs (e.g. entrepreneurs who start a business for the flexibility it offers to balance work-family demands). She noted a high level of interest among female entrepreneurs in Canada in entrepreneurship training and education, which underscores the importance of understanding their learning culture to develop and deliver suitable training initiatives.

Learning to Be an Entrepreneur

Capacity development relies on learning (Bolger, 2000). Within the discussion of the nature of the learning culture of female entrepreneurs, specifically Canadian entrepreneurs who are mothers, it is important to highlight the theoretical foundations of learning that are relevant to this study. One of the key findings related to how female entrepreneurs learn is that their learning experiences tend to be less structured and informal in nature (Thomas & Moisey, 2006).

Understanding Informal Learning

The formality of learning is categorized into three types: informal learning, non-formal learning, and formal learning. Livingstone (2012) proposed that these types of learning exist in a multi-stage continuum that progresses, with overlaps, from formal, institutionally-based learning experiences to self-directed learning experiences. Although informal learning can be defined as

simply as learning that occurs "outside an intentionally educational setting" (Jubas & Butterwick, 2008, p. 519), the nuances of what it means to learn outside of an educational setting make 'informal learning' a rather ambiguous term. For the purposes of this study, informal learning is defined as an umbrella term that encompasses intentional, self-directed learning activities and unintentional (incidental) learning experiences, as well as learning that occurs implicitly, tacitly, or through enculturation (Schugurensky, 2000). Conversely, formal learning is defined as instructor-directed activities that lead to credentials (e.g., K-12 and post-secondary education) and non-formal learning is defined as instructor-directed activities that are not associated with credentialing (Livingstone, 2012). The main difference between informal learning and formal or non-formal learning is that informal learning is not prescriptive.

Informal learning can be either individual or social experience (Eraut, 2004) and, in either case, may consist of informational, observational, experiential, and reflective informal learning activities. While the bulk of the existing literature on informal learning is focussed on social informal learning experiences, Moore and Klein (2015) noted in their study of instructional design graduate students that the most frequently reported types of informal learning activities were solitary and included Internet searches, personal reflection, and trial and error in practical settings. From a workplace perspective, Schürmann and Beausaert (2016) also noted that seeking information online and scanning professional resources were significant individual informal learning activities.

Several overarching motivators for informal learning have been identified in past studies. For example, Li et al. (2016) reported that a person's level of interest in the topic and the regular usefulness of the topic to the individual were consistently important motivators of informal learning. Other motivators, as identified by Carpenter and Linton (2016) included opportunities

for new learning experiences and collaboration. Two important characteristics of the teachers

who participated in Carpenter and Linton's (2016) study were the sense of responsibility they

had for their own professional learning and their choice to participate in informal learning

activities to mitigate the social isolation that is inherent in their job as a teacher.

Several studies have also highlighted the outcomes of informal learning such as

discovering alternative approaches to tasks, gaining the ability to accelerate productivity through

the development of new skills (Yanchart & Hawkley, 2015) improving existing career

competencies (Preenen et al., 2015), and developing new career competencies to manage new

and unfamiliar situations (Thomson & Trigwell, 2016; Yanchart & Hawkley, 2015). Informal

learning experiences are also important for receiving reassurance of competence (Thomson &

Trigwell, 2016) and developing soft skills and transferable skills (Brook & Corbridge, 2016).

Relating to capacity development, informal learning may impact a shift in personal attitudes

(Burkšaitienė, 2015; Thomson & Trigwell, 2016) and overall life change (Bonk et al., 2015).

Additionally, it is important to recognize the multifaceted and dynamic nature of informal

learning experiences. Oftentimes, informal learning occurs while immersed in everyday activity

(Schei & Nerbø, 2015) or through simulations (Kelly & Hager, 2015). The situation and context

shape the informal learning experience through variables such as the influence of community

(Alenius, 2016), the incorporation of technology (Czerkawski, 2016; Davis, 2015), and whether

the informal learning experience is occurring in conjunction with a formal learning experience

(Czerkawski, 2016). The learning climate and culture also play a critical role within the learning

scenario. Casual and routine conversations, friendships, and mentoring relationships play an

important role in determining the learning culture (Pifer et al., 2015). According to a study of

informal learning in the workplace by Noe et al. (2016), there is a relationship between goal

orientation and the pursuit of informal learning experiences, in which a positive, supportive learning climate enhances engagement in informal learning. In other words, psychological safety is an important condition for informal learning (Schürmann & Beausaert, 2016). Further conditions that have a positive impact on informal learning include a sense of belonging, the meaningfulness of the activity to the learner, and an awareness of any benefits, challenges, or drawbacks associated with any technology that the learner may encounter (Davis, 2015).

The Development of Informal Learning Research

Informal learning research is rooted in the study of capacity development. Several studies, published in the 1970s, were fundamental to the development of the concept of informal learning. In 1972, the International Commission on the Development of Education for the United Nations Educational, Scientific, and Cultural Organization (UNESCO), published a report titled *Learning to Be*: a comprehensive, holistic research study on the global state of education (Faure et al., 1972). This report discussed learning outside of formal educational institutions and made the point that schools are not the sole environments where learning takes place. Platt (1973) in his discussion of the *Learning to Be* report, emphasized the importance of developing a deeper understanding of learning as it occurs across the lifespan and outside of formal educational structures.

Coombs and Ahmed (1974) provided the first comprehensive study on education as it occurs outside of formal institutions. While their research focused primarily on non-formal learning as it pertained to vocational skill development and entrepreneurship, they introduced the concept of informal learning as different from formal and non-formal learning, stating:

. . . the great bulk of any person's total lifetime education is acquired *outside* schools

(formal education) and outside other *organized* educational processes (nonformal [sic]

education). People learn primarily from day-to-day experiences and from the multitude of educative forces in their environment – from family and neighbors, work and play, religious activities, the marketplace, newspapers, books, broadcasts, and other media. For the purposes of this study we called this important mode of learning *informal* education (not to be confused with *nonformal* [sic]). (Coombs and Ahmed, 1974, p. 232-233)

Tough (1979), provided the first explicit discussion of informal learning, exploring why adults in North America choose to learn: the main reason being to perform at a higher level. He stated that informal learning is the predominant form of learning experienced by adults, but refined Coombs and Ahmed's (1974) definition of informal learning to exclude *incidental learning* experiences. Rather, Tough (1979) described informal learning as a deliberate, self-directed activity through which the learner is intending to acquire new knowledge. The key differentiators between incidental learning and Tough's (1979) definition of informal learning were the elements of intention and awareness of learning, which do not occur with incidental learning (Livingstone, 1999; Tough, 1979). Schugurensky (2000) classified Tough's (1979) definition of informal learning as *self-directed learning*. He further added the dimension of *tacit learning*, the process of enculturation, as a form of informal learning that is distinct from both self-directed learning and incidental learning. As mentioned earlier, Schugurensky's definition of informal learning provides the foundation for analyzing the learning experiences of Canadian entrepreneurs who are mothers.

Despite the fact that roughly four decades have passed since these seminal works were published, there remains a paucity of research in the field of informal learning (Chunngam et al., 2014; Park et al., 2011; Sangrà & Wheeler, 2013; Song & Lee, 2014). Yet, with the growing use

of digital technologies and the ease with which we can connect to others around the world through network structures and ICTs, the study of informal learning has become increasingly relevant (Sangrà & Wheeler, 2013).

Entrepreneurship in the Motherhood Context and Informal Learning

Although formal learning options are available to Canadian entrepreneurs who are mothers through higher education institutions, the literature suggests that mothers who are entrepreneurs are most likely to engage in informal learning experiences to develop entrepreneurial competencies (Thomas & Moisey, 2006). There is a research gap, however, regarding the nature of the learning experiences of this group of entrepreneurs. Further studies, such as this one, are needed to better understand the learning culture of mothers who pursue entrepreneurship and to confirm whether it consists mostly of informal experiences.

One of the critical barriers impacting competency development through informal learning is the issue of social capital. Social capital is defined as the relational assets through which an entrepreneur can access and activate resources, knowledge sharing opportunities, support, and business opportunities (Lee, 2015). Research on female entrepreneurship and on motherhood, in general, frequently mentions the phenomenon of social isolation that occurs within the motherhood context. Simply put, mothers tend to experience social isolation which leads to a loss of social capital (Goldin, 2014; Hughes et al., 2012; Jean & Forbes, 2012; Jennings & Brush, 2013; Kawash, 2011; Slaughter, 2015; Valtchanov et al., 2014). The experience of social isolation naturally leads to a loss in social capital where female entrepreneurs may lack formal contacts, especially at the start-up level, despite a desire for support and learning (Surangi, 2016).

The 2015 GEM Canada Report on Female Entrepreneurship linked the importance of social capital, particularly the connections one has with other entrepreneurs, to facilitate informal learning opportunities (Hughes, 2015). Additionally, according to the interviews conducted by Dickinson et al. (2015), many female entrepreneurs in Canada express a similar sense of lack when it comes to both mentorship and the acquisition of social capital through networking opportunities. This lack of opportunity for informal learning often results in reduced potential for entrepreneurial success (Dickinson et al., 2015). A lack of social capital may also lead to a lack of diversity in one's social network and a lack of diversity in one's social network may result in stagnation in terms of learning (Van Waes et al., 2016).

The paramount importance of social contexts for informal learning is evident. Whether the setting is digital (Bonk et al., 2015; Davis, 2015; Garcia et al., 2015) or face-to-face, seemingly casual interactions with peers are significant informal learning opportunities (Schürmann & Beausaert, 2016; Takayanagi, 2016; Thomson & Trigwell, 2016). Receiving feedback (Schürmann & Beausaert, 2016) and mentorship from colleagues is also critical to social learning (Turner et al., 2016). Networking communities specifically for female entrepreneurs may offer a solution by helping women increase their social capital while also sharing strategies for negotiating barriers related to work-family demands (Bodolica & Spraggon, 2015). Women, especially those with limited experience with business ownership, may benefit from mentoring experiences where they can ask questions, and learn business lingo and the culture of entrepreneurship in an emotionally safe setting (Sa'ar, 2016).

A second critical barrier relates to the development of entrepreneurial competencies. Mitchelmore and Rowley (2013) define entrepreneurial competencies as "underlying characteristics such as specific knowledge, motives, traits, self-images, social roles and skills

which result in venture birth, survival, and/or growth." (p. 128). Of concern are the results of studies such as Cheraghi and Schøtt's (2015) research, which reported that women appear to invest less in developing entrepreneurial competencies when compared to male entrepreneurs, increasing both the gender gap and the likelihood that women will drop an entrepreneurial venture. They suggested that the time-demands of caring for a family while managing a business may offer an explanation as to the reported lower levels of female investment in developing entrepreneurial competencies (Cheraghi & Schøtt, 2015). Exploring how, and the extent to which, female entrepreneurs develop entrepreneurial competencies is a critical aspect of understanding their learning culture.

A Learning Ecologies Framework of Analysis

Analyzing the learning experiences of Canadian entrepreneurs who are mothers using an ecological framework facilitates a better understanding of the complex interplay of factors that impact the development of entrepreneurial competencies. Further, the application of an ecological framework allows for an exploration of whether and how digital learning experiences are furthering capacity development among Canadian entrepreneurs who are mothers. In this section, the term *learning ecologies* will be operationalized, past research related to the concept of learning ecologies will be discussed, and an explanation for focusing on the activation of digital learning experiences within the learning ecologies of Canadian mothers who are entrepreneurs will be given.

Understanding the Term 'Learning Ecologies'

The term *learning ecologies* is primarily derived from the work of two scholars, Barron (2006) and Jackson (2013). Barron (2006) described learning ecologies as context sets in which activities and interactions with materials and others occur. Jackson (2013) described one's

learning ecology as "the process(es) I create in a particular context for a particular purpose that provide me with opportunities, relationships and resources for learning, development, and achievement" (p.14). While these descriptions provide a vague gestalt for conceptualizing learning using the analogy of an ecology, the concept of learning ecologies remains emergent, ambiguous, and in need of further refinement (Sangrà et al., 2019). In order to develop a clear framework for data analysis, the theoretical work of Bronfenbrenner (1979) and a Delphi assessment by González-Sanmamed et al. (2019) provided a foundation for clarifying the meaning of the term and all that it encompasses.

The concept of learning ecologies has its roots in the work of Bronfenbrenner (1979), who put forth a theoretical perspective of human development that takes an ecological approach. While his focus was primarily on children, the concepts he described are applicable across the lifespan. He described the different ecological systems, contexts, transitions, and interpersonal structures that impact psychological growth.

The ecological systems specified by Bronfenbrenner are the microsystem, the mesosystem, the exosystem, and the macrosystem. The microsystem is the "complex of interrelations within the immediate setting" (Bronfenbrenner, 1979, p. 7), which are the activities and interactions with resources and others within a singular context. Similarly, the mesosystem is "a set of interrelations between two or more settings in which the developing person becomes an active participant" (Bronfenbrenner, 1979, p. 209). In other words, an individual's cross-contextual activities and interactions with resources or others form the mesosystem. While the microsystem and mesosystem centre on what the individual is doing, the concept of the exosystem exists beyond an individual's activity. The exosystem consists "of one or more

settings that do not involve the developing person as an active participant" (Bronfenbrenner, 1979, p. 237) but affect and influence the development of the individual nonetheless.

The macrosystem also exists outside the individual and is the outermost layer of one's ecology. Bronfenbrenner defines the macrosystem as "the consistency observed within a given culture or subculture" (p. 258). For example, while each Canadian entrepreneur who is a mother has scaffolded and developed her own learning ecology, her learning ecology is situated within the learning culture of mothers who pursue entrepreneurship. Exploring the similarities and differences among multiple individual learning ecologies facilitates a better understanding of the overarching learning culture of the group.

In their Delphi study, González-Sanmamed et al. (2019) sought to further delineate the concept of learning ecologies by identifying the key components involved in the learning process. They suggested that the components of an individual's learning ecology can be categorized into one of two dimensions: an intrinsic dimension and an experiential dimension. Within the intrinsic dimension are components related to character and disposition (e.g. conceptions, motivations, and expectations), while the experiential dimension involves processes (relationships, resources, actions, context) related to an individual's "successive learning processes throughout the course of their life" (p. 1648).

The notion of progressive learning over the life course is indicative that a learning ecology is dynamic, not static, and is constantly shifting and changing in response to an individual's needs and state of development over time. Transitions are also part of an individual's learning ecology. According to Bronfenbrenner (1979), ecological transitions occur "whenever a person's position in the ecological environment is altered as a result of a change in role, setting, or both" (p.26).

Situating the descriptions of learning ecologies provided by Barron (2006) and Jackson (2013) in the theoretical works of Bronfenbrenner (1979), and using the work of González-Sanmamed et al. (2019) to further delineate the concept, provided a foundation for better operationalizing the term learning ecologies. In order to effectively analyze the data from this study through the application of a learning ecologies framework, the concept of a learning ecology, and its components, must be clearly articulated.

In this study, a learning ecology is defined as the sum of all the components that comprise or affect an individual's ongoing learning and subsequent development over time. Each individual's learning ecology consists of their dispositions and experiences, which impact their choices and processes within the microsystems and mesosystems of their learning ecology. Learning experiences involve processes that are composed of sets of contexts, within which activities, resources, and relationships occur to support learning. Sometimes events within exosystems occur and indirectly impact an individual's learning. Ecological transitions, changes in role or setting, at any level of an individual's learning ecology, also affect development. The learning culture of a group (the macrosystem) can be explored by investigating the individual learning ecologies of members collectively to identify patterns and commonalities.

Lastly, within the literature discussing learning ecologies there are inconsistencies with the plural (learning ecologies) and the singular (learning ecology) usages of the term. To clarify, each individual has their own learning ecology (singular) that includes multiple learning environments or contexts. When examining the learning culture of a group, each individual member's learning ecology becomes part of an aggregate of learning ecologies. Thus, throughout the thesis, the singular 'learning ecology' will be used when describing an individual case and

the plural 'learning ecologies' will be used when discussing the collective experiences of the research sample.

Constructing a Learning Ecologies Framework of Analysis

The application of a learning ecologies framework as a data analysis tool requires the deconstruction of a learning ecology into its component parts. Investigations of an individual's learning ecology should focus on understanding context activation (including the reasons for selecting a particular context), what is being learned within a specific context, the nature of learning within a particular context (e.g. formal learning, non-formal learning, informal learning), an individual's learning processes and preferences, change over time, and motivations for learning. While a case-level analysis is important for understanding the complexities within an individual learning ecology, patterns and consistencies that exist across multiple individual's ecologies provide insight into the learning cultures of particular groups.

Digital Learning Experiences of Canadian Entrepreneurs Who Are Mothers

A key focus of this study is to investigate the learning culture of Canadian entrepreneurs who are mothers, specifically the potential of digital contexts to support capacity development. Our increasing ubiquitous ability to access information and participate in online discussions affords new ways of connecting and learning from one another that are less bounded by time and geography than ever before. Although in-person learning opportunities are available to Canadian entrepreneurs who are mothers, such opportunities may not be feasible given the demands of parenting. As an example, attending courses on entrepreneurship or face-to-face networking experiences may be difficult for mothers who are small business owners due to caregiver responsibilities.

There is evidence that digital learning contexts are an essential part of the learning ecologies of Canadian entrepreneurs who are mothers for the development of entrepreneurial competences. For instance, according to Valtchanov et al. (2014) and Bjork-James (2015), mothers are increasingly accessing the Internet and participating in online communities to gain and share knowledge, to obtain support through social exchange, and as a solution to feeling socially isolated and stuck in their homes. Canadian entrepreneurs who are mothers are also using digital platforms to connect with one another (Mompreneurs, n.d.a; Women in Biz Network, n.d.), presumably for the same reason as mothers in general. The rise of social networking sites and online communities that cater specifically to the Canadian entrepreneurs who are mothers is an indicator that this population is looking to meet many of their learning needs in online spaces. For example, Mompreneurs® Canada, a network offering information and opportunities for connection among its members has an online community of over 17 000 women (Mompreneurs, n.d.b).

What remains unknown is the extent to which Canadian entrepreneurs who are mothers are activating digital contexts for learning business skills and how this compares to their overall use of digital platforms and resources. Scholars have previously discussed how to categorize people based on the temporal dimensions of their technology use. White and Le Cornu (2011) classified technology users into digital visitors and digital residents. Kieslinger (2015) expanded upon this classification and presented the categories of heavy, targeted, and restricted users. Zhu and Purdam (2017) specifically explored the experiences of super-users. To better understand the potential of digital learning contexts for capacity development, the extent to which digital contexts are being activated needs to be measured. Thus, an exploration of whether and to what extent Canadian entrepreneurs who are mothers activate digital learning contexts, within their

learning ecologies, to develop their entrepreneurial competencies is an important part of

understanding the learning culture of this group.

Chapter 2: Methodology

The primary goal of this research study was to explore how Canadian entrepreneurs who are mothers scaffold and develop learning ecologies for capacity development through digital informal learning experiences. Understanding whether and how Canadian entrepreneurs who are mothers activated digital informal learning experiences, related to the development of entrepreneurial competences, for the purpose of capacity development was the emphasis of the study. The study applied an interpretivist paradigm and a mixed design strategy to answer the research questions and achieve the research objectives. The research consisted of two stages: an exploratory survey stage followed by a descriptive and explanatory case study stage.

After an extensive review of the literature, the assertion was made that no previous studies have investigated the ways that female entrepreneurs activate digital learning contexts for the development of entrepreneurial competencies. Thus, the methodological design required the creation of original instruments based on the theoretical underpinnings of the study. The chapter begins with an overview of the methodology, followed by a description of the sampling strategy and the research design. The chapter concludes with an explanation of the framework for analysis.

Overview of the Methodology

The project was a complex study that brought together theory and concepts from multiple academic domains. Ultimately, as the study focused on the measurement of career-related competencies developed through informal learning, Eraut's (2004) three questions for exploring informal learning provided the foundation for the generation of the research questions. Specifically, Eraut asked: "What is being learned? How is it being learned? What factors affect the level and direction of the learning effort?" (p. 248). The research questions for this study

were modified versions of Eraut's questions and are listed in Table 2.1, along with the research

objectives, strategies and instruments, and expected outcomes for the study.

Table 2.1

Research Questions, Objectives, and Expected Outcomes

Stage of Research	Research Questions	Research Objectives	Strategies and Instruments	Expected Outcomes
Quantitative	RQ1: In what ways do the digital learning experiences of participants illustrate the common elements of their collective learning ecologies? (exploratory and descriptive/explanatory) RQ3: How do participants' digital learning experiences impact their capacity development? (exploratory)	To describe the digital learning experiences of Canadian entrepreneurs who are mothers. To analyse the possibilities for digital informal learning to support the capacity development of Canadian entrepreneurs who are mothers.	Survey to explore the relationships between digital informal learning experiences, entrepreneurial competency development, and capacity development. Open-ended question within survey (to answer RQ1 at a descriptive and explanatory level). SPSS analysis and content analysis	To better understand the typical digital informal learning experiences that Canadian entrepreneurs who are mothers activate to develop entrepreneurial competencies. To better understand the impact of participants' digital learning experiences on their capacity development.
Qualitative	RQ1: In what ways do the digital learning experiences of participants illustrate the common elements of their collective learning ecologies? RQ2: What factors benefit or hinder the potential of informal learning for capacity development within the digital learning ecologies of Canadian entrepreneurs who are	To diagnose the ways that Canadian entrepreneurs who are mothers are activating digital informal learning experiences for capacity development.	Data collection using case study strategy through field observations (field notes and screen captures of online discussions and interactions) and interviews conducted via Zoom (with audio recording) to answer the research questions at a descriptive and explanatory level.	To better understand how and why Canadian entrepreneurs who are mothers activate specific contexts for competency development. To describe and explain the possibilities for digital informal learning within the learning ecologies of Canadian

mothers? (descriptive and explanatory)	Content analysis of interview; case study analysis	entrepreneurs who are mothers to support capacity development
RQ3: How do participants' digital learning experiences impact their capacity development? (descriptive and explanatory)		To identify factors that benefit or hinder capacity development within the learning ecologies of Canadian entrepreneurs who are mothers.
		To deliver recommendations for guidelines, strategies, and actions regarding the development of digital informal learning experiences of Canadian entrepreneurs who are mothers that may help them and potentially other populations with capacity development.

Research Paradigm

The nature of the research questions guided the selection of the paradigmatic approach

for the study. As the questions focussed on understanding the perspectives and subjective

experiences of participants, an interpretivist paradigm was an appropriate choice. Interpretivism

centers on the experiences of participants and the meaning that they construct from their

experiences (Mack, 2010). Within an interpretivist paradigm, a researcher seeks to understand

phenomena through the gathering, triangulation, and interpretation of multiple, subjective

perspectives related to the context under investigation (Anderson, 2016; Dean, 2018; Mack, 2010). The outcome of a study based on an interpretivist paradigm is discovery and knowledge generation (Dean, 2018) with the results used to create "local theories of practice rather than generalizable findings" (Mack, 2010, p. 8).

Research Approach

Anderson (2016) stated that an interpretivist paradigm involves seeking to understand a variety of unique worldviews, which is best accomplished through ethnography. Several articles on learning ecologies and informal learning further justified taking an ethnographic approach. Relating to the concept of learning ecologies, Barron (2004) stated the need for "interview, observational, and ethnographic research to articulate the kinds of learning contexts that students experience, and map how these contexts differ for diverse groups of students" (p. 29). Eraut (2004), in his investigation of informal learning in the workplace, noted the methodologies regularly used in this type of research. He stated that interviews are commonly used, but adds that "ethnographic studies have given many valuable insights into socio-cultural aspects of learning in particular settings" (Eraut, 2004, p. 248). Greenhow and Lewin (2016) called for "more research that examines learning in digital cultures which is perhaps more ethnographic in nature" (p. 24).

The central tenet of ethnography is understanding the culture of a group. Ethnographic research focuses on discovery and does not assume answers (LeCompte & Schensul, 1999), making this approach an appropriate choice within an interpretivist paradigm. Critical to any ethnographic study is intimate involvement with members of the group in their natural, social setting (LeCompte & Schensul, 1999; Lincoln & Guba, 1985; Merriam & Tisdale, 2016). In the case of this study, the researcher is also a Canadian mother who has launched several business

ventures over the past decade. Therefore, the researcher is a member of the community being investigated and has established the necessary trust for this type of research. As LeCompte and Schensul (1999) wrote, "intimate involvement means building trust between the researcher and the participants and often calls for a special kind of friendship" (p.10).

The results of an ethnographic study include 'thick descriptions' of the participants' perspectives of cultural phenomena which inform the researcher's interpretations (Cohen et al., 2011). Henry et al. (2016), in their review of methodological approaches in gender and entrepreneurship research, called for further research that gathered extensive and rich data that investigated diversity within groups previously cast as homogenous, making ethnography an appropriate approach for this investigation. The decision to use an ethnographic approach within an interpretivist paradigm guided the research design and sampling strategy, which are outlined below and described in detail in later parts of this chapter.

Research Design

Although ethnographic studies tend to be qualitative, the lack of existing research on the digital informal learning experiences of female entrepreneurs required an initial quantitative stage to gather foundational data on the learning contexts and experiences of Canadian entrepreneurs who are mothers. In particular, the investigation of the literature revealed a need to explore whether, to what extent, and for what purpose, Canadian entrepreneurs who are mothers activated different digital learning contexts in the development of entrepreneurial competencies. A better understanding of the digital learning landscape of Canadian entrepreneurs who are mothers, accomplished through the analysis of these quantitative data, drove the design of a second qualitative stage to obtain explanatory data. Thus, this research study used a mixed design strategy.

A mixed design strategy is an appropriate methodology for achieving a deep understanding of a phenomenon (Cohen et al., 2011; Johnson et al., 2007). Gay et al., (2009) stated, "the purpose of mixed methods research is to build upon the synergy and strength that exists between quantitative and qualitative research methods to understand a phenomenon more fully than is possible using qualitative and quantitative methods alone" (p. 462). Gelo et al. (2008) referred to the type of research design used in this study as a *follow-up explanation model* in which "the researcher first identifies specific quantitative findings that need additional explanation (e.g. significant--non-significant, outlier, or surprising results), and then collect and analyse data from participants that can best help in explaining the results" (p. 282). With the interpretivist and ethnographic nature of the study, adopting the *follow-up explanation model* placed the emphasis of the research on the qualitative stage, with any quantitative aspects existing to provide a foundation for richer qualitative data and triangulation (Henry et al., 2016).

A key benefit of mixed methods research is its ability to identify what is happening and to explain how or why a finding is present (Cohen et al., 2011). The trustworthiness of the findings is dependent upon *legitimation* (Onwuegbuzie & Johnson, 2006). Legitimation is a continuous and iterative process of "applying evaluative criteria at multiple levels of the mixed research inquiry" (Collins et al., 2012, p. 851) by which the quality and credibility of the research outcomes can be assessed (Cohen et al., 2011; Collins et al, 2012; Onwuegbuzie et al., 2011). Onwuegbuzie and Johnson (2006) put forth nine types of legitimation that were incorporated into the research design to ensure credible findings: sample integration, inside-outside, weakness minimization, sequential, conversion, paradigmatic mixing, commensurability, multiple validities, and political. Each of these is described in further detail later in this chapter when the mixed methods analysis strategy is discussed.

Sampling Strategy

This study sought to better understand the digital informal learning experiences of English-speaking Canadians who self-identified as women and who were pursuing entrepreneurship within the context of motherhood. The study targeted mothers who were either solo-entrepreneurs (zero employees) or who ran micro-enterprises (defined by the Government of Canada (2016, 2019) as having between one to four employees). To be considered eligible for this study, participants were required to have fifty-percent ownership, or more, of their business. Further, as the term *mother* encompasses a broad spectrum of life stages, family situations, and roles, this study required that participants were the parent or legal guardian of at least one child, under the age of eighteen, who resided with them either full-time or part-time (e.g. shared custody with a former partner).

Ultimately, a convenience, snowball sampling strategy was used to recruit participants; however, other sampling strategies were tried first to obtain a representative sample. The evolution of the sampling strategy for this study and the challenges that emerged are described below.

Initial Sampling Strategy

Efforts were made to identify the population of Canadian entrepreneurs who met the above criteria by accessing statistical sources at both the provincial and national levels; however, data on female small business owners was lacking. For instance, *The Key Small Business Statistics Report* (Government of Canada, 2016), deemed the most suitable foundational data source when designing the study, had no data on the percentage of micro-enterprises, or even small businesses, that were majority female-owned or equal partnerships between male and female owners. Further, no data on solo-entrepreneurs (business owners with no employees) or

the percentage of entrepreneurs who were also mothers could be found in this report. Due to the lack of relevant information in the report, the researcher called Statistics Canada to enquire about available statistics to establish a sample frame of female entrepreneurs who were solo-entrepreneurs or owners of micro-enterprises. Statistics Canada performed a search to determine whether specific statistics were available for this population; however, they did not find any data. Thus, a sample frame could not be established and a nonprobability, community-based sampling method was determined to be an appropriate method for recruiting participants for this study.

An assumed characteristic of the target population under study was that they were likely to access networks and organizations that provide support to female entrepreneurs. Therefore, efforts were made to utilize networks and organizations for Canadian female entrepreneurs as a gateway for reaching the population. To determine appropriate networks and organizations to consider as gateways, a call was made to Jill Earthy (Simon Fraser University, 2016), a well-known champion of female entrepreneurship in Canada for a list of recommended Canadian female entrepreneurial networks. This list was cross-referenced with a list of national-level organizations provided on the Government of Canada website (Government of Canada, n.d.) to ensure credibility.

In February and March of 2017, brief informal phone calls took place with leaders of several networks to find out more about their organization, whether it attracted the population under study, and whether it was a suitable organization for achieving the research objectives. During the call, the general nature of the research study was described to the network leader. The researcher answered questions and listened to concerns about the willingness of network members to participate in a survey. No data was collected during these calls and no commitment was made from either party during the phone conversation. As a result of these calls and a

subsequent attempt to use several of these networks to distribute an online version of the survey, it became apparent that there would be major challenges in recruiting research participants through networks for female entrepreneurs.

Sampling Challenges

During the initial, informal phone conversations, network leaders expressed an unwillingness to send a dedicated email to their network with details of the research study to the organization's email list. Nor were they willing to send any follow-up emails. They did not want to send multiple emails to their list or send the survey link as a separate email, as they were concerned such actions would result in members unsubscribing from their email list, which is an important marketing and communication asset for these organizations. Leaders stated that they would be willing to provide a link to the survey as part of one regularly scheduled email newsletter that included other monthly content for their organization.

While obtaining the email list or network member details from these organizations for sampling purposes would have been ideal, Canada has strict privacy laws prohibiting such information sharing. Thus, due to these privacy laws, the organizations were unable to divulge member lists and information for the purpose of sampling. According to Canadian privacy laws, specifically the Personal Information Protection and Electronic Documents Act (PIPEDA):

> Organizations covered by the Act must obtain an individual's consent when they collect, use or disclose the individual's personal information. The individual has a right to access personal information held by an organization and to challenge its accuracy, if need be. Personal information can only be used for the purposes for which it was collected. If an organization is going to use it for another purpose, consent must be obtained again.

Individuals should also be assured that their information will be protected by appropriate safeguards.

Under PIPEDA, the definition of organization includes an association, a partnership, a person or a trade union.(Office of the Privacy Commissioner of Canada, 2015, p. 2)

After the survey instrument had been developed and had undergone expert validation, leaders of these same organizations were contacted again in August 2018, with the survey link and a request to include the link, plus a short description of the research, in their upcoming emails for September and October of 2018. The online survey remained open from August through November of 2018; however, only 13 people accessed the survey and no surveys were completed in full. In order to develop a methodologically suitable solution, this problem was presented to a panel of experts at the Ph.D. Symposium for the European Distance and e-Learning Network (EDEN) Research Workshop on October 24, 2018, along with a proposed solution. The expert consensus was that the following revised sampling strategy would be appropriate.

Revised Sampling Strategy

In recognizing that established trust and a relationship with members of the population, will increase the likelihood of participation (Flanagan & Hancock, 2010), and considering the ethnographic nature of the study, the researcher decided (through consultation with the panel of experts at the EDEN Ph.D. Symposium) that a convenience, snowball sampling method would be appropriate given the challenges in attracting participants through gateway organizations. Ethnographic research also calls for face-to-face contact with participants within a natural

setting. Thus, the mode of delivery for the survey shifted from an online survey to a structured, one-on-one video interview (conducted using Zoom software) using the validated survey.

From November 2018 through April 2019, the researcher, who has many connections within the Canadian female entrepreneur community, sent direct messages via email and social media platforms to recruit Canadian entrepreneurs who are mothers, with whom she was acquainted, for the study. These communications asked if these contacts would be willing to be interviewed and included a letter of information about the study (Appendix A). The researcher also posted requests for research participants on her Facebook, Instagram, and LinkedIn profiles as well as within Facebook groups for female entrepreneurs, with permission from the group administrator. All messages and posts included a link to an online scheduling platform, through which participants selected an interview time. At the end of each interview, the researcher asked participants whether they would connect her with other Canadian entrepreneurs who are mothers within their networks. Participants emailed connections and posted about the survey in additional Facebook groups and on their social media profiles, which led to the recruitment of participants of whom the researcher had no prior acquaintance. The convenience, snowball strategy proved effective and the researcher administered the survey in a structured interview format to 47 participants.

Survey Sample Size

As a sample frame could not be established, a literature search relevant to determining sample sizes based on the methodological design was performed to establish an appropriate sample size for the survey. Using the *follow-up explanation model* of mixed methods research design, the initial quantitative stage is exploratory and a smaller-sized non-probability sample is suitable and fitting (Daniel, 2011). For an ethnographic study, 30 to 50 interviews are considered

to be an appropriate sample size (Onwuegbuzie & Collins, 2007). Cohen et al. (2011)

recommended a minimum sample size of 30 if researchers plan to use some form of statistical

analysis.

To make a final determination as to whether the sample size was large enough to produce

reliable results at n=47, the researcher used SPSS to perform a jackknife sampling technique.

The data set was split to create two separate data sets: the first data set included the first 23

participants and the second data set included participants 24 through 47. Descriptive statistics

were performed for all variables in both data sets. Next, the two data sets were compared to

confirm that the results were similar for each variable in each data set with regard to the

measures of central tendency and the distribution of the results. The analysis confirmed that the

data was reliable at a sample size of 47.

One open-ended question was asked at the end of the survey and the qualitative data from

this question was also used to confirm the appropriateness of the sample size. Being that

saturation (the emergence of new qualitative themes) for the open-ended data was reached after

approximately 20 interviews, the adequacy of a sample size of 47 was supported.

Case Study Sample

The case study sample consisted of two typical and two critical cases that were

determined based on the findings from the survey stage (as described in the 'framework for

analysis and interpretation' section of this chapter). Almost all participants (n=46) during the

survey stage had indicated a willingness to be contacted for a follow-up interview and four

strong candidates representing two typical and two critical cases were recruited for the second

stage of the research study.

Survey Design

As baseline data in the form of descriptive statistics is lacking with regard to Canadian

entrepreneurs who are mothers, a cross-sectional, non-experimental survey was developed with

the purpose of exploring patterns, relationships, and naturally occurring variability among

variables (Daniel, 2011; Johnson et al., 2007). The degree of depth for the survey was

exploratory. Its main purpose was to obtain numerical data that identified patterns related to the

development of entrepreneurial competencies within participants' digital learning ecologies and

the impact of participants' digital learning experiences on their capacity development. A pilot

survey was developed and administered, after which the final survey was constructed.

Pilot Survey

During the initial, informal phone calls to organizations, leaders expressed concern over

the possible length of the survey. Several leaders noted that members of their networks are

surveyed often and may be resistant to surveys, particularly lengthy surveys. Ethically, Haan and

Ongena (2014) cautioned against placing an undue burden upon participants and suggested a

tailored design to overcome a reluctance to participate among sample members. With this in

mind, the initial plan was to develop a short survey that could be completed within ten to fifteen

minutes. Drawing upon the supporting literature for this study, a pilot survey was created that

addressed levels of proficiency with regard to entrepreneurial competencies, informal learning

experiences, digital learning ecologies, and demographic variables. The pilot was then

administered on June 5, 2017, at a one-day conference in Vancouver, BC, for members of the

Mompreneurs network. Conference attendees were deemed to be an appropriate representation of

the target sample. Forty-four people participated in the pilot survey (n=44), which resulted in 28

completed surveys. Colton and Covert (2007) recommended that a pilot sample be composed of twenty to fifty individuals, which supports the adequacy of a pilot sample size of n=44.

Eleven of the pilot survey participants, with whom the researcher had a pre-existing relationship, were also asked to complete a validation form. These validators were selected for their business experience and experience working with members of the target sample. Based on the feedback from survey validators along with the drop-off patterns for the uncompleted surveys, the decision was made to revise the survey considerably prior to expert validation.

Final Survey Design

Major survey revisions were performed between July 2017 and February 2018. Although the length of the survey was a significant concern in maximizing the number of responses, the researcher and research supervisors came to the consensus that shortening the survey would compromise the value of the research. A revised version of the survey was constructed and included questions relating to digital learning contexts, the development of entrepreneurial competencies within these contexts, measures of capacity development, and demographic variables. This version was sent to five expert validators for feedback in the spring of 2018. Each validator completed a validation form and suggestions for improvements were incorporated to generate the final version of the survey.

The final version of the survey (Appendix B) consisted of six sections. Section one consisted of five *screening questions* to confirm that the participant met the criteria for the study (e.g. Canadian resident, at least one child under age 18, owner of at least 50% of her business, business is a microenterprise). Sections two, three, and four explored how participants developed their *digital learning ecologies* with regard to digital learning activities, digital learning resources, and digital relationship experiences to develop *core entrepreneurial competencies*.

Section five measured *capacity development* (referred to in the survey as 'usefulness of digital learning experiences') and section six asked *demographic questions*. The demographics section helped establish baseline data about respondents to identify whether any particular demographic variables corresponded to other patterns during the analysis of the data.

When the decision was made to administer the survey in a one-on-one video-conferencing format, a final open-ended question was added asking participants whether they would like to share anything else about their learning experiences as an entrepreneur. The purpose of this question was to identify other potentially important themes that were not addressed in the survey questions.

Care was taken to provide clear instructions on how to respond to questions. Simple and concise language was used throughout the instrument to ensure consistency in respondents' understanding of the questions and instructions in order to increase the reliability of the results (Andres, 2012; Blasius & Thiessen, 2012). According to Andres (2012), each concept presented in a survey must be defined precisely then converted into measurable variables. The following three subsections (learning ecologies, entrepreneurial competencies, and capacity development) describe how each concept was operationalized for the purpose of creating the variables for analysis.

Learning Ecologies. The bulk of the survey focused on answering the first research question: In what ways do the digital learning experiences of participants illustrate the common elements of their collective learning ecologies?

A learning ecology encompasses the whole of an individual's learning over time and includes their experiences, their intrinsic learning preferences and motivations, and external factors that impact learning. Within an individual's learning ecology are "the set of contexts

found in physical or virtual spaces that provide opportunities for learning [Barron, 2004]. Each

context is comprised of a unique configuration of activities, material resources, relationships, and

the interactions that emerge from them" (Barron, 2006, p. 195).

The objectives of the survey stage were to describe the digital learning experiences of

Canadian entrepreneurs who are mothers and to analyse the possibilities for digital informal

learning to support the capacity development of Canadian entrepreneurs who are mothers. Thus,

the survey focused solely on sets of contexts found in virtual spaces. Based on previous findings

that female entrepreneurs tended to seek out informal learning opportunities versus formal

training (Thomas & Moisey, 2006), and to gather data that would facilitate the analysis of

possibilities for digital informal learning to support capacity development, the virtual contexts

included in the survey were those that facilitated digital informal learning experiences.

To determine appropriate digital informal learning contexts for the survey (that would be

relevant to the target sample), a variety of sources were consulted. In the literature related to

learning contexts for female entrepreneurs, Sharafizad (2018) identified several informal

learning contexts found in digital spaces: webinars, participation in online communities,

watching videos posted online or listening to audio content, Internet searches, messaging or

talking to others to share resources, and subscribing to e-newsletters and blogs. Other resources

designed by Canadian female entrepreneurship organizations to support Canadian entrepreneurs

who are mothers highlighted the relevance of social media posts, social media groups, video

content, podcasts, blog posts, and online magazine articles (Mompreneurs, n.d.a.; Women in Biz

Network, n.d.).

Considering these sources together, the following digital informal learning contexts were

identified as being relevant to Canadian entrepreneurs who are pursuing entrepreneurship within

the motherhood context: social media platforms, private messaging platforms, video-conferencing platforms, webinars, informational videos, blog posts or online magazine articles, podcasts, email newsletters from industry experts, e-books, online mentors, online mastermind groups, and online communities of practice. Additionally, formal and non-formal learning contexts were added to verify whether respondents primarily develop entrepreneurial competencies through informal learning. The formal and non-formal contexts added to the survey were: completing tasks and accessing course materials for an online degree or diploma program offered by a university or college, completing tasks or accessing materials for an online course taught by a business coach or industry expert (not part of a degree or diploma program), and accessing Massive Open Online Courses (MOOCs). All of the identified contexts were sorted into three sets: *digital activities*, *digital resources*, and *digital relationship experiences*. In Table 2.2, each digital learning context is categorized into the appropriate context set.

Table 2.2

Sets of Contexts for Digital Learning Experiences

Digital Activities	Digital Resources	Digital Relationship Experiences
Posting or participating in conversations on social media platforms or other online group forums	Content posted by others on social media platforms or other online group forums	Using digital technology to connect with a mentor (in which you have a pre-established mentoring relationship)
Conversations and information sharing using messaging platforms (texting, Facebook messenger, WhatsApp, iMessage)	Informational videos (YouTube, TED talks, Lynda.com, Khan Academy, previously recorded webinars)	Using digital technology to connect one-on-one with another business professional (who is not a pre-established mentor)
Having video conversations with others (using platforms such as Zoom, Skype, Google Hangouts, FaceTime, etc.) or participating in real-time	Blog posts or online magazine articles	Participating in an online mastermind group (less than 10 people who meet regularly)

online chats		
Participating in interactive, real-time webinars	Podcasts	Using digital technology to connect with other professionals within a <u>free-access</u> online community
Completing tasks for an online degree program offered by a university or college	Email newsletters from industry experts	Using digital technology to connect with other professionals within a <u>paid-access</u> (members only) online community
Completing tasks for an online course taught by a business coach or industry expert (that is <u>not</u> part of a degree or diploma program)	E-books	
	Course materials for an online degree programs offered by a university or college	
	Massive Open Online Courses (MOOC)	
	Course materials for an online course taught by a business coach or industry expert (that is <u>not</u> part of a degree or diploma program)	

Sections two through four of the survey explored the extent to which participants activated each context (to learn business skills and for other purposes). Section two focused on *digital learning activities*, section three focused on *digital learning resources*, and section four focused on *digital relationship experiences*. The reason for asking about the extent of activation to learn business skills and for other purposes was to gain an overall sense of frequency patterns of use among respondents. For example, can participants be classified into low, moderate, and heavy users of digital technology (Kieslinger, 2015; Zhu & Purdam, 2017)? Which of these classifications is typical of most respondents?

To measure whether, and to what extent, participants activated a context (to identify overall patterns of activation and to categorize respondents by frequency of context activation), participants were asked to think about the past year and to approximate how much time they spent during an average week activating or accessing each context (0 = 'not at all', 1 = one hour or less, 2 = more than one hour, but not more than two hours, 3 = more than two hours but not more than 3 hours, 4 = more than three hours, but not more than four hours, 5 = four or more hours). Participants were asked to estimate how much of this time per week was spent 'learning business skills' and how much time per week was spent on 'other purposes'. Other purposes for activating the context included personal purposes and non-learning related business activities (such as online marketing, customer communications, etc.).

Entrepreneurial Competencies. Sections two through four of the survey also explored the entrepreneurial competencies that participants' sought to develop when activating digital learning activities, digital learning resources, or digital relationship experiences to learn business skills. If a participant responded that she activated a context for the purpose of learning business skills, she was then asked whether and how frequently (1 = not at all, 2 = rarely, 3 = neutral, 4 = moderately, 5 = a great deal) she activated that context to develop specific entrepreneurial competencies. These questions were asked to better understand the typical digital informal learning experiences that Canadian entrepreneurs who are mothers activate to develop entrepreneurial competencies.

The Female Entrepreneur Competence (FEC) Framework (Mitchelmore & Rowley, 2013) provided the foundation for deciding which entrepreneurial competencies to include in the survey. Mitchelmore and Rowley (2013) presented the FEC Framework as an instrument for female entrepreneurs to self-assess their entrepreneurial competencies. The FEC Framework

consists of four overarching competence factors (personal and relationship competencies, business and management competencies, entrepreneurial competencies, and human relations competencies). Each competence factor encompasses a cluster of measurable, individual competencies (shown in Table 2.3).

During the pilot survey stage, each of the individual competencies within each competence factor was listed as a separate survey item; however, this proved to be too taxing for respondents. Considering that Mitchelmore and Rowley (2013) acknowledged that some of the individual competencies included in their survey are very similar to one another, the decision was made to group similar competencies together to elicit meaningful results without overwhelming respondents. The Entrepreneurship Competence (EntreComp) Framework (Bacigalupo et al., 2016) was used as an additional resource to group the individual competencies from the FEC framework into *core entrepreneurial competencies* that represented each competence factor.

Table 2.3

Operationalization of Core Entrepreneurial Competencies

Mitchelmore & Rowley (2013): Competence Factors	Mitchelmore & Rowley (2013): Individual competencies clustered within each factor	Core entrepreneurial competencies for survey	Individual competencies represented in the core entrepreneurial competencies
Personal and relationship competencies	-interpersonal skills -oral communication skills -relationship building -networking -integrity -self-confidence -motivating self -political competence -being active	**Communication skills**	-oral communication skills
		Working with others to advance your business	-political competence (ability to enhance your position, establish connections) -relationship building -networking -interpersonal skills

	-desire to succeed -perseverance	**Self-motivation and perseverance**	-motivating self -desire to succeed -perseverance -being active (proactive)
		Confidence	-integrity -self-confidence
Business and management competencies	-budgeting skills -business operational skills -developing management systems -formulating and implementing strategies for exploiting opportunities -business plan preparation and writing -development of operational systems -planning business activities -managing finance	**Financial skills**	-budgeting skills -managing finance
		Creating systems	-business operational skills -developing management systems -development of operational systems
		Strategic planning	-formulating and implementing strategies for exploiting opportunities -business plan preparation and writing -planning business activities
Entrepreneurial competencies	-idea generation -innovation skills -visioning -envisioning opportunities -product innovation -creativity -willingness to take risks -scan environment for opportunities -risk taking	**Coming up with new ideas and innovations**	-idea generation -innovation skills -product innovation -creativity
		Envisioning new opportunities and taking advantage of them	-visioning -envisioning opportunities -scan environment for opportunities
		Coping with risk and uncertainty	-willingness to take risks -risk taking
Human relations competencies	-employee development -managing employee performance -human relation	**Training employees**	-employee development
		Managing others who	-human relation management skills

	management skills -employee relations -hiring skills -leadership skills -motivate others -management style -management skills	**work for you**	-employee relations -management style -management skills -managing employee performance
		Hiring skills	-hiring skills
		Leadership and motivational skills	-leadership skills -motivate others

Capacity Development. Section five of the survey was designed to answer the research

question: how do participants' digital learning experiences impact their capacity development?

While the previous sections focused on *competency development* to gain a sense of what

types of digital learning experiences are typically activated by respondents (and for what

purposes), section five explored how digital learning experiences were impacting capacity

development.

In the theoretical framework for this study, capacity development was defined at the

individual level as *developing, strengthening, and maintaining an individual's capabilities to*

support autonomous choice leading to the experience of self-actualization. Considering this

definition, the measurement of capacity development relies on the identification and

specification of a collection of individual *capabilities*, with the premise being if one possessed

all these capabilities then they would be in an ideal position to reach their full potential

(Robeyns, 2003). Drawing upon Sen's (1979) capabilities approach to capacity development,

Robeyns (2003) put forth a set of capabilities, which provided the framework for measuring

capacity development through the survey.

Table 2.4 lists Robeyns' (2003) ideal capabilities, describes each capability, and provides

the corresponding measure of capacity development for female entrepreneurs that was derived

from Robeyns' list. The breadth of several of Robeyns' capabilities required that they be broken

down into multiple measures for clarity and precision. The measure of capacity development

reflects what entrepreneurs require to be in a position to develop, strengthen, and maintain

Robeyns' ideal capabilities, as per the definition of capacity development used in this study.

Table 2.4

Measures of Capacity Development

Robeyns' (2003) List of Ideal Capabilities	Description (Robeyns, 2003)	Measure of Capacity Development for Female Entrepreneurs
Life and physical health	Ability to be physically healthy (living a life of normal length)	Time and resources to care for physical health
Mental well-being	Ability to be mentally healthy (the absence of negative mental states and psychological distress)	Time and resources to care for mental well-being
Bodily integrity and safety	Ability to be protected from violence of any sort	Ability to remove oneself from an unsafe situation should the need arise
Social relations	Ability to be part of social networks	Having a strong business network that provides opportunities for business growth and advantage
Social relations	Ability to give and receive social support	Support from family and friends with regard to role as a business owner
Political empowerment	Ability to participate in and influence political decision-making	Participation in activities related to policy development for female entrepreneurs
Education and knowledge	Ability to acquire knowledge	Taking advantage of opportunities to educate oneself further as a business owner
Domestic work and nonmarket care	Ability to raise children and care for others without a negative impact on well-being	Resources to get help with domestic tasks or childcare, if desired
Paid work and other projects	Ability to receive fair compensation and exposure for one's work	Pays oneself an appropriate salary that reflects profession, level of experience, and nature of products/services provided
Shelter and environment	Ability to live in a safe and pleasant environment	Ability to live in a home and neighbourhood of one's choosing
Mobility/social relations	Ability not to be constrained to a location; ability to give and receive social support	Does not feel isolated in role as an entrepreneur

Mobility/social relations	Ability not to be constrained to a location; ability to give and receive social support	Support and resources to attend local business-related meetings and events
Mobility/social relations	Ability not to be constrained to a location; ability to give and receive social support	Support and resources to travel broadly for business purposes
Leisure activities	Ability to engage in leisure activities	Time and resources to participate in preferred leisure activities
Time autonomy	Ability to choose how to allocate one's time	Freedom and support to work during preferred times
Time autonomy	Ability to choose how to allocate one's time	Freedom and support to pursue leisure activities at preferred times
Respect	Ability to feel respected and treated with dignity	Feeling respected by others

The above measures comprised 17 of the 18 measures of capacity development for the survey. The final capability in Robeyns' list related to religion, specifically an individual's choice to practice a religion. From a gender inequality perspective, she stated that "androcentric or misogynist rules are often imposed on women" within religious contexts (Robeyns, 2003, p. 83). For the purpose of measuring female capacity development through entrepreneurship, asking about religious freedom was deemed irrelevant; however, the description of Robeyns' capability related to religion aligned with the concept of personal autonomy, which is a key element of capacity development (Heylighen, 1992; Oshana, 1998). Thus, instead of asking about religious choice, the survey asked participants whether their digital learning experiences had *improved their ability to make independent decisions about what was best for them* as the eighteenth measure of capacity development.

Ethics Protocol

To ensure compliance with Canadian standards for research, the researcher completed the Government of Canada's course on research ethics involving humans (Panel on Research Ethics, n.d.). During recruitment, participants were sent a Letter of Information and Consent in advance

of the interview (Appendix A). This letter described the purpose of the research, the data

gathering process, how data would be kept confidential, how results would be shared, risks and

benefits of participation, and the process for withdrawing from the study. The letter also

informed participants that they would be asked about their willingness to participate in a follow-

up interview and provided information about protocols for the case study stage.

At the start of each interview, prior to starting the recording and administering the survey,

participants were asked whether they had read the letter and were given the opportunity to ask

any questions. If they had not read the letter, the researcher provided a verbal overview of the

research protocols. To ensure informed consent, the survey began with a series of questions to

confirm participant acceptance of the conditions of the research process (see Appendix D). The

final question asked participants if they consented to begin the interview, at which point the

researcher began the recording and administered the survey.

To protect the identity of participants, pseudonyms were used during the analysis and

reporting of results and any identifying remarks were excluded during the transcription stage.

Case Study Design

Following the analysis of the survey results, four cases (two typical, two critical) were

selected (the process and criteria for case study selection are described in the results chapter).

The reason for including typical cases is to triangulate these cases with the broader survey data to

increase both the depth and the validity of the transferability of findings made during the analysis

(Cohen et al., 2011; Stake, 1995; Yin, 2013). The purpose of including critical cases as well was

to "yield insights that might have a wider application" (Cohen et al., 2011, p. 157), which is

important for the identification of capacity development strategies and actions.

The purpose of the case study stage was to explore, in considerably more depth, the patterns and trends that emerged during the survey analysis. Careful consideration was given to the approach of this stage, given the time limitations of a Ph.D. project and the importance of establishing relationships when undertaking ethnographic case studies (O'Reilly, 2009).

Data Collection Plan

Data were collected at the case study stage through semi-structured interviews that were conducted using Zoom video-conferencing software. The interview instrument was designed to answer the research questions at an explanatory level. The research questions addressed during the case study stage were:

- In what ways do the digital learning experiences of participants illustrate the common elements of their collective learning ecologies? (descriptive and explanatory)

- How do participants develop their digital learning ecologies for capacity development? (descriptive and explanatory)

- What factors benefit or hinder the potential of informal learning for capacity development within the digital learning ecologies of participants? (descriptive and explanatory)

The research objective for the case study stage was to diagnose the way that participants activated digital informal learning experiences for capacity development as they developed their learning ecologies. Considering the ethnographic nature of the study, the case study interviews were designed to elicit responses that would describe the digital learning culture of the case study participants in relation to the learning ecologies framework while answering the research questions. Following the recommendation of Stake (1995), "a short list of issue-oriented

questions" (p. 65) was developed to elicit descriptive and explanatory responses. The following

semi-structured questions were asked during the case-study interviews:

1. Inform the participant of their most activated learning contexts (from survey results).

    a. Describe the ways in which you use [most activated contexts] to learn as a

       business owner.

2. What types of skills have you worked to develop as an entrepreneur? What skills are you

   currently working on?

3. Describe how your learning experiences have evolved over time as an entrepreneur.

4. What have been your most valuable learning experiences in terms of improving your

   business?

5. What have been your greatest barriers to learning as an entrepreneur?

6. What could be done to better support your learning, and ultimately your success, as an

   entrepreneur?

7. After having done these two interviews, is there anything else you would like me to

   know?

Ethnographic research also involves multiple data sources. Along with participant

responses to the semi-structured interview questions, each case study also included a re-

examination of the participants' initial survey results and investigating any specific digital

activities, resources, or relationships that participants mentioned during either interview.

Framework for Analysis and Interpretation

The learning ecologies framework provided an overarching structure for the different

stages of the analysis. The following analyses were performed sequentially after each stage of

the research: a quantitative analysis to gather descriptive statistics was performed on the survey data, a qualitative thematic analysis was performed on the open-ended responses from the survey, a qualitative content analysis was performed on the data from the case study interviews, and a mixed-methods analysis was performed to conclude the study by triangulating the data from the different stages.

Quantitative Analysis

Since the research design used a *follow-up explanation model*, the overarching goal of the survey stage was to identify phenomena relevant to the research questions (at an exploratory level) to guide the second, explanatory stage of the study (Gelo, Braakmann, & Benetka, 2008). The research objectives of the survey stage of the research were (1) to describe the learning ecologies of participants, (2) to analyse how participants activate informal learning contexts to develop entrepreneurial competencies, and (3) to explore the impact of participants' digital learning experiences on capacity development. The expected outcomes were (1) to better understand what are the typical digital informal learning experiences that participants activated to develop entrepreneurial competencies and (2) to identify two typical and two critical cases for the second stage of the research. In order to achieve the objectives and expected outcomes, the researcher analysed the data in the following manner.

Analysis of Context Activation. The learning ecologies framework provided the foundation for the analysis and interpretation of the quantitative data. Considering that learning experiences within an individual's learning ecology involve sets of contexts, the first step in the quantitative analysis was to identify the typical learning contexts of participants. In order to do this, SPSS software was used to construct frequency tables for each variable that represented a digital learning context (context variables). The extent to which each context was activated to

learn business skills and for other purposes was used to identify commonly activated contexts, as well as the most and least activated contexts. The context variables were also grouped by 'context set' to identify activation patterns related to digital activities, digital resources, and digital relationship experiences more broadly.

Table 2.5

Context Variables

Context Variable	Context Set	Description of Context
DA1	Digital activities	Having conversations on social networking sites
DA2	Digital activities	Conversations using messaging platforms
DA3	Digital activities	Video conversations with others
DA4	Digital activities	Participating in interactive, real-time webinars
DA5	Digital activities	Completing tasks for an online degree program
DA6	Digital resources	Completing tasks for an online course that is not part of a degree or diploma program
DR1	Digital resources	Content posted by others on a social network
DR2	Digital resources	Informational videos
DR3	Digital resources	Blog posts or online magazine articles
DR4	Digital resources	Podcasts
DR5	Digital resources	Email newsletters from industry experts
DR6	Digital resources	E-books
DR7	Digital resources	Course materials for an online degree program
DR8	Digital resources	Massive Open Online Courses (MOOCs)
DR9	Digital resources	Course materials for an online course that is not affiliated with a university or college
RE1	Digital relationship experiences	Using digital technology to connect with a mentor
RE2	Digital relationship experiences	Using digital technology to connect one-on-one with another business professional (not a mentor)
RE3	Digital relationship experiences	Participating in an online mastermind group
RE4	Digital relationship experiences	Connecting with other professionals in a free-access online community

RE5	Digital relationship experiences	Connecting with other professionals in a paid-access online community

Analysis of Entrepreneurial Competency Development. The second step in the quantitative analysis was to analyse how participants activated informal learning contexts to develop entrepreneurial competencies. For each context, participants were asked how frequently they activated that context to develop specific entrepreneurial competencies. These entrepreneurial competencies were represented by 14 variables linked to each context variable. The competency variables were analysed within each context and across contexts to better understand the typical digital informal learning experiences that participants activated to develop entrepreneurial competencies.

Table 2.6

Competency Variables

Variables	Competency set	Description of competency
PC1	Personal competencies	To develop communication skills
PC2	Personal competencies	To develop business relationships
PC3	Personal competencies	To develop perseverance
PC4	Personal competencies	To develop confidence
MC1	Management competencies	To develop financial skills
MC2	Management competencies	To develop ability to create systems
MC3	Management competencies	To develop strategic planning abilities
EC1	Entrepreneurial competencies	To develop ability to come up with new ideas and innovations

EC2	Entrepreneurial competencies	To develop ability to take advantage of new opportunities
EC3	Entrepreneurial competencies	To develop ability to cope with risk
HRC1	Human resource competencies	To develop ability to train employees
HRC2	Human resource competencies	To develop ability to manage others who work for you
HRC3	Human resource competencies	To develop hiring skills
HRC4	Human resource competencies	To develop leadership skills

Analysis of Competency Development within Contexts. To analyse the variables within and across each context, each individual variable was labeled by context as well as competency. For example, the nomenclature for the competency variables linked to the context of having conversations on social networking sites (DA1) is shown in Table 2.7. This process of naming individual variables was followed for each context.

Table 2.7

Example of Nomenclature for Individual Variables

Variable	Description
DA1PC1	Having conversations on social networking sites to develop communication skills
DA1PC2	Having conversations on social networking sites to develop business relationships
DA1PC3	Having conversations on social networking sites to develop perseverance
DA1PC4	Having conversations on social networking sites to develop confidence
DA1MC1	Having conversations on social networking sites to develop financial skills
DA1MC2	Having conversations on social networking sites to develop ability to

	create systems
DA1MC3	Having conversations on social networking sites to develop strategic planning abilities
DA1EC1	Having conversations on social networking sites to come up with new ideas and innovations
DA1EC2	Having conversations on social networking sites to develop ability to take advantage of new opportunities
DA1EC3	Having conversations on social networking sites to develop abiity to cope with risk
DA1HRC1	Having conversations on social networking sites to develop ability to train employees
DA1HRC2	Having conversations on social networking sites to develop ability to manage others who work for you
DA1HRC3	Having conversations on social networking sites to develop hiring skills
DA1HRC4	Having conversations on social networking sites to develop leadership skills

To analyse competency development with each context, the variables were grouped by context (e.g. the data for all DA1 variables were examined together, the data for all DA2 variables were examined together, and so forth). SPSS software was used to obtain frequency tables for each variable within the context grouping to determine 1) which competencies were typically developed in each context and 2) whether competency development differed by context.

To analyse competency development across contexts, the variables were grouped by competency (e.g. the data for all variables with PC1 in the nomenclature were examined together). The objective of this analysis was to determine whether participants sought to develop some competencies more than others, and the extent to which competencies were being developed, regardless of context. When participants reported that they activated a context to learn business skills, they were then asked to what extent (not at all, rarely, neutral, moderately, a great deal) they activated that context to develop each of the 14 competencies. The extent to

which each competency was developed across contexts was determined by examining the range of responses related to each competency in all contexts.

Analysis of Capacity Development. The third step in the quantitative analysis was to explore the impact of participants' digital learning experiences on capacity development. The survey instrument included 18 measures of capacity development, each of which was converted into a capacity development variable (CD1 through CD18). To analyse the impact of participants' digital learning experiences on capacity development, SPSS software was used to obtain frequency tables for each capacity development variable to identify patterns among participants. An additional variable (CD_sum) was created to represent the sum of each participant's responses to the capacity development questions and their overall capacity development score.

Identification of Typical and Critical Cases. The final expected outcome of the survey stage was to identify typical and critical cases for the case study stage of the research. Patterns associated with each variable were considered to determine the selection of four cases, two typical and two critical, for the qualitative stage of the study.

Qualitative Analysis

Thematic Analysis of the Open-Ended Survey Question. Although the case study stage of the research was the primary qualitative component of the study, there were two qualitative aspects of the survey stage: side comments made by respondents during the administration of the survey and a final open-ended question at the end of the survey. A thematic analysis, using Dedoose software and a constant comparative method (Merriam & Tisdell, 2016), was performed on the qualitative data from the survey as part of the process for developing a

coding schema for the case study analysis. The themes that emerged are described in the results chapter.

Case Study Analysis. The data for the case study stage of the research project consisted of the semi-structured interview transcript for each case study participant, quantitative and qualitative data provided by the four case study participants during the survey stage, and digital artifacts mentioned by participants during the semi-structured interviews. Following the transcription of the data, each transcript was compared to the original audio recording to ensure that the conversational pauses were accurately transcribed. Considering the ethnographic nature of the study, the objective of the analysis was to aggregate all data sources for each case to develop a thick, explanatory description of how case study participants' learning experiences impact their capacity development. In order to generate thick descriptions, content analysis was used to unitize, code, and reduce the text.

Content analysis is a "process of summarizing and reporting written data -- the main contents of data and their messages" (Cohen et al., 2011, p. 563). While the practice of content analysis has its roots in the analysis of mass communications, it is an appropriate technique for analysing any written data, including interview transcripts (Cohen et al., 2011; Krippendorf, 2013). Krippendorf (2013,) outlined the process of content analysis:

- Having a body of text to analyse (the interview transcript)

- Having a research question to guide the process

- Applying a context to make meaning of the text (the theoretical framework for the study)

- Having an "analytical construct" (p.35) to operationalize what is known about the context (a learning ecologies framework of analysis)

- Making inferences to answer the research question

- Validating the evidence.

Krippendorf argued that it is not necessary for content analysis to transform qualitative data into quantitative units for numerical analysis, a position previously held by other scholars (Cohen et al., 2011). The content analysis procedure for this study applied Krippendorf's (2013) principles to achieve what he states should be the expected result: abductive inferences that facilitate the narration of the answers to the research questions.

To perform the content analysis, the transcript was broken into context units (Krippendorf, 2013). Each contextual unit consisted of the full response to an interview question. Being that there were seven interview questions, there were seven contextual units. The coding schema consisted of using the codes for each of the survey variables (which were based on the theoretical framework for the study) and the codes identified in the thematic analysis of the final, open-ended question of the survey. Additionally, novel codes were identified while reading the transcripts and added to the list of codes for the analysis. Dedoose software was used to support the coding process. Once inferences from the data were made, the de-identified preliminary findings were emailed to participants to verify that their experiences were accurately described and to validate the results.

A critical part of conducting ethnographic research is maintaining an awareness of researcher bias (Schensul et al., 1999). During the data collection process, the researcher recorded her comments made to participants during the interviews and used these as a tool to reflect upon her experiences as a member of the community under study. As per the recommendation of Schensul et al. (1999), I recorded my, "inferences and personal observations, reflections, hunches, and emotional reactions" (p. 116) as memos that accompanied my

conversational remarks to participants. These comments and memos were referenced during the content analysis and during the writing of the thick descriptions to limit researcher bias from influencing the results.

Mixed Methods Analysis

During the mixed methods analysis, the quantitative and qualitative data were triangulated and the overall findings were assessed for legitimation. The data were triangulated using the learning ecologies framework of analysis and legitimation of the findings was assessed using Onwuegbuzie and Johnson's (2006) nine types of legitimation.

Data Triangulation. The process of triangulation involves converging multiple types of data, collected using different methodologies, with the objective of finding agreement among the data to demonstrate validity (Cohen et al., 2011; Mertens & Hesse-Biber, 2012; Turner et al., 2017). The learning ecologies framework of analysis was applied to triangulate the quantitative data and qualitative data from this study.

The mixed-methods analysis reviewed the qualitative and quantitative data with the goal of providing explanatory descriptions of the overall learning culture of Canadian entrepreneurs who are mothers (which is considered the mesosystem, from a learning ecologies standpoint) as it related to:

- Context activation
- What is being learned in different contexts
- The nature of learning both within and across contexts
- Learning processes, motivations, and preferences
- Change over time

Assessing Legitimation. The final procedure in the analysis was the process of assessing legitimation and the final section of the results is devoted to detailing the legitimation of the study. As described earlier in this chapter, legitimation is a process that occurs throughout a study to ensure that the findings of the study are credible and trustworthy (Onwuegbuzie et al., 2009). The objective of legitimation is to reduce problems associated with mixed methods research (Cohen et al., 2011). Table 2.8 lists Onwuegbuzie and Johnson's (2006) nine legitimation types for mixed methods research and how it was assessed for this study. The descriptions are derived from several works (Cohen et al., 2011; Collins et al., 2012; Onwuegbuzie et al., 2009) that provide further descriptions and interpretations of the nine legitimation types.

Table 2.8

Strategy for Assessing Legitimation

Legitimation type	Description	Assessment strategy
Sample integration	The extent to which the sampling design yields meta-inferences/conclusions.	List the limitations of the sample at each stage of the research.
Inside-outside	The extent to which the researcher's understanding of the phenomenon is consistent with the views/perceptions of the participants.	Provide participants with a summary of the findings during the analysis stage to validate the results.
Weakness minimization	The extent to which the weaknesses of one approach used in the study are compensated for by the other approaches used.	Describe how the qualitative stage compensated for weaknesses in the quantitative stage and visa versa.
Sequential	The extent to which the meta-inferences/conclusions would be impacted if the order of the study were reversed.	Describe how the ordering of the stages of the research (quantitative to qualitative) impacted data interpretation.
Conversion	The quality of inferences stemming from the quantization of qualitative data and/or the qualitization of quantitative data.	Describe whether and how quantitative data was transformed into qualitative data and vice versa, as well as how the transformation

		impacted the conclusions.
Paradigmatic mixing	The extent to which the researcher is able to explain the philosophical underpinnings of the study and how they were integrated to answer the research question.	Describe the findings in relation to the research paradigm, approach, and theoretical framework.
Commensurability	The extent to which the meta-inferences/conclusions are reflective of different viewpoints.	Describe how the conclusions capture both a quantitative and qualitative worldview.
Multiple validities	The extent to which the researcher can defend the validity of the quantitative component and the qualitative component as individual entities.	Describe the measures taken to ensure validity at each stage of the research.
Political	The extent to which the meta-inferences/conclusions are acceptable to the research audience.	Describe how the findings will be useful to the Canadian entrepreneurs who are mothers community, stakeholders and policymakers for this community, as well as other scholars.

Chapter 3: Results

The results chapter includes the survey results, the selection of case study participants, and the case study results. A total of 47 Canadian entrepreneurs who are mothers participated in the survey stage of the study, four of whom were selected to participate in the case study stage. The four case study participants represented typical and critical cases, based primarily on the capacity development summary variable (described in the methodology chapter). At the end of the chapter, the triangulated results from both stages of the study and the overarching findings are presented.

Survey Results

The survey instrument consisted of a series of quantitative questions and concluded with a single open-ended question in which participants were asked whether there was anything else they wanted the researcher to know about their learning experiences as an entrepreneur. The quantitative data elicited findings on the demographic characteristics of the sample, the extent to which learning contexts were activated, the extent of the development of entrepreneurial competencies within each learning context, and the impact of participants' digital learning experiences on their capacity development.

Sample Characteristics

The survey instrument was administered to 47 participants (n=47). All participants resided in Canada, had at least one child under the age of 18 living with them at the time of the survey, and owned at least 50% of their business. Participants primarily resided in the provinces of British Columbia (n=23) and Ontario (n=21). An additional three participants lived in Alberta.

Business Demographics. The overwhelming majority of participants (n=43) ran businesses were solo ventures or micro-enterprises with 0-4 employees. Four participants reported having between 5-19 employees. Most participants (n=29) had only one business; however, 18 reported having more than one business. Four participants reported being independent distributors for multi-level marketing businesses.

Roughly half of the participants (n=23) had owned their business for less than 5 years and the other half owned their business for more than 5 years (n=24). Of the participants who had owned their business for more than five years, 12 had owned their business for more than 10 years.

Most participants (n=34) reported that their business revenue (in Canadian dollars) for the past year was less than one hundred thousand dollars. Of these participants, 20 reported that their annual business revenue was less than 30,000 dollars. Twelve participants reported that their business revenue was between 100,000 and 500,000 dollars and one participant selected that she preferred not to answer the question.

The types of businesses owned by participants varied and are described in Table 4.1. Although there were 47 participants, the numbers in the third column add up to 48, as one participant (who had more than one business) ran two different types of businesses. Nearly one-half of participants ran companies that offered business-to-business services.

Table 3.1

Types of Businesses Owned by Participants

Industry	Description	n
Arts and culture	Businesses associated with the creative arts and literary arts (e.g. artists, craft suppliers, photographers, writers, etc.)	5
B2B services	Businesses that provide services exclusively to other businesses (e.g. business coaching, bookkeeping, editing and publishing, graphic design, HR support, legal services, marketing,	20

	networking services, web design)	
Baby and family	Businesses that develop products and services specifically for babies and families that are unrelated to schooling (e.g. baby/child product development and distribution, coaching services for parents, prenatal and postnatal support services, resources and activity guides for families, etc.)	7
Education	Businesses that are related to the education sector (e.g. tutoring, private student support services, online training and professional development for sectors other than entrepreneurs*)	3
Finance	Businesses that offer financial services to the general public (e.g. accounting, credit counseling, financial advising, etc.)	4
Health and wellness	Businesses that sell products and services to support health and wellness (e.g. alternative health products and services, fitness products and services, healthy living resources, nutrition and dietary support, etc.)	5
Non-profit	Businesses that are not-for-profit and offer support to their community or a specific population	2
Beauty	Businesses that sell products and services for beauty (e.g. beauty product development and distribution, esthetician services, hair services, etc.)	2

Many business coaches offer online training for entrepreneurs as part of their coaching services. These are considered B2B services.

Personal Demographics. All participants were born before 1990: 16 participants were born between 1980 and 1989, 28 participants were born between 1970 and 1979, and 3 participants were born between 1960 and 1969. Thus, the majority of participants were in their forties at the time of the interview and a sizable minority were in their thirties.

The majority of participants (n=43) had completed some sort of formal postsecondary education: 13 participants had a postsecondary diploma or certification, 18 participants had an undergraduate degree, and 12 participants had a graduate-level degree. All remaining participants (n=4) had a high school diploma. Almost all participants (n=43) reported that English was their first language.

Most participants (n=39) were married or in a common-law relationship. Seven participants were separated or divorced and one participant was single. The most common responses for participants' number of children were two (n=24) or three (n=12) children. A few participants (n=7) reported having a child with a disability and several participants (n=4) reported being a person with a disability themselves.

Participants' children ranged in age from infants to young adults with most participants reporting that their oldest child was school age: 18 participants reported that their oldest child was elementary school age (6-12 years old) and 20 participants reported that their oldest child was high school age (13-17 years old). An additional 7 participants reported that their oldest child was 5 years old or younger.

Participants' youngest children tended to be elementary school age or younger: 29 participants reported that their youngest child was elementary school age (6-12 years old) and 12 participants reported that their youngest child was under 6 years of age. An additional 6 participants reported that their youngest children were in their early teens (13-15 years old).

Participants' Learning Ecologies: Context Activation

To describe the learning experiences of participants and, subsequently, their digital learning experiences at an exploratory level, several analyses were performed. First, the extent to which each learning context was activated was calculated in terms of 1) the average number of hours that participants spent activating each context and 2) the number of participants that activated each context to a low, moderate, or high degree. Secondly, an analysis was performed to determine differences among participants regarding the extent of their personal overall activation of contexts. Lastly, to analyse how participants activate informal learning contexts to

develop entrepreneurial competencies, the proportion and the raw number of participants that activated each context for the development of each competency was calculated.

Average Activation of Contexts to Learn Business Skills. Sections 2, 3, and 4 of the survey began by asking participants to think about the past 12 months and estimate how much time they spend during an average week activating specific digital learning activities, digital resources, and digital relationship experiences to learn business skills. Participants were asked to identify how much time they spent in each context for the purpose of learning business skills and for other purposes (0 = not at all , 1 = 1 hour or less, 2 = more than one hour, but not more than 2 hours, 3 = more than 2 hours, but not more than 3 hours, 4 = more than 3 hours, but not more than 4 hours, 5 = 4 or more hours).

To determine the overall extent to which contexts were activated for entrepreneurial competency development, the average number of hours per week that participants activated each context to learn business skills was calculated. Figures 4.1 through 4.3 show the mean score for how many hours per week participants spent activating each digital activity context, each digital resource context, and each digital relationship context to learn business skills.

Digital Activity Contexts. On average, participants spent less than two hours per week in each digital activity context. Contexts that supported conversational activities (conversations on social networking sites, messaging platforms, and using video technology) were more frequently activated compared to task-oriented contexts (webinar participation, completing tasks for an online degree program offered by a college or university, and completing tasks for an online course that is not part of a degree or diploma program. Further, informal learning contexts (conversations on social networking sites, conversations on messaging platforms, conversations using video technology, and participating in real-time webinars) were more frequently activated

than formal (completing tasks for an online degree) or non-formal (completing tasks for an

online course that is not part of a degree or diploma program) contexts.
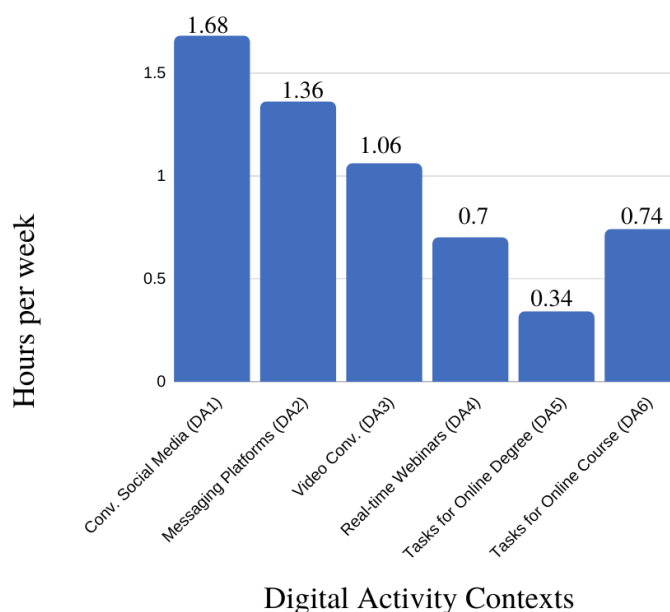
Figure 3.1. Average Activation of Digital Activity Contexts

Digital Resource Contexts. Accessing content posted by others on a social networking

site was the most frequently activated digital resource context as well as the most activated

context overall. Participants spent between one to two hours, on average, activating

informational videos, blog posts or online magazine articles, podcasts, email newsletters, and

course materials for online courses that were not affiliated with a college or university (non-

formal courses). It is important to note that several participants that reported accessing materials

for a non-formal online course were activating materials from a course they had taken in the past,

making this context activation more informal (self-directed) than non-formal (instructor

directed). Formal online course materials (from courses affiliated with a college or university)

and MOOCs were the least activated digital resource contexts, with MOOCs being the least

activated context overall. When asked how frequently they accessed MOOCs, many participants

stated that they had no knowledge that this resource existed.

E-books were not frequently activated; however, some participants mentioned when this

question was asked that they activated audiobooks instead. Thus, in future studies, it would be

worthwhile adding audiobooks as an additional digital resource context.
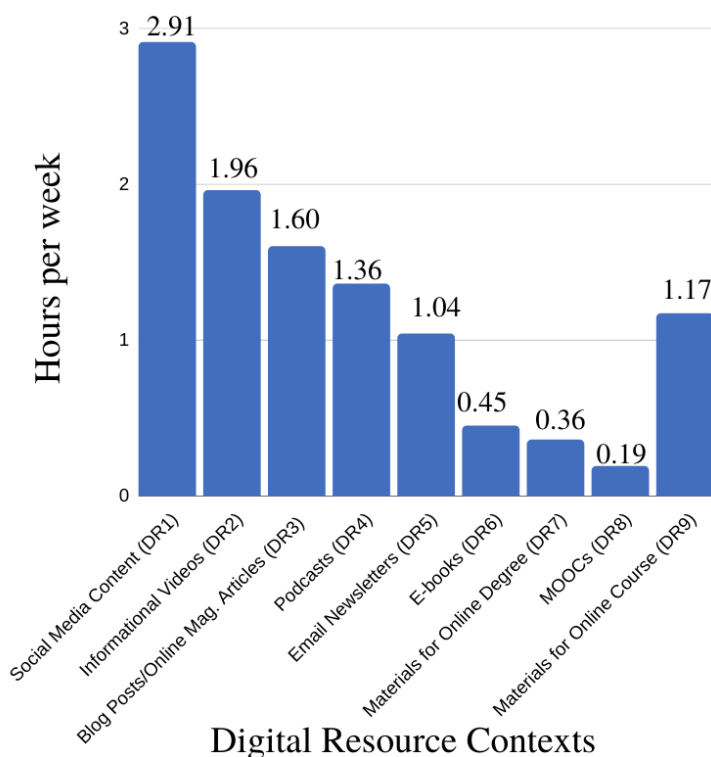
Figure 3.2. Average Activation of Digital Resource Contexts

Digital Relationship Contexts. The most activated digital relationship experiences were

those with no cost: using technology to connect one-on-one with a colleague (not a mentor) and

connecting with other professionals in a free-access online community. Side comments made by

participants during the administration of the survey indicated that connections with a mentor

using technology, online mastermind groups, and paid-access online communities often had a

cost attached. Further, these contexts were likely to be bundled together as add-on features to a

non-formal online course. For example, some survey participants described purchasing a

coaching program that included multiple contexts such as non-formal course materials, one-to-

one meetings with the coach (or mentor), online mastermind group meetings, and a private

Facebook group for ongoing asynchronous discussion.
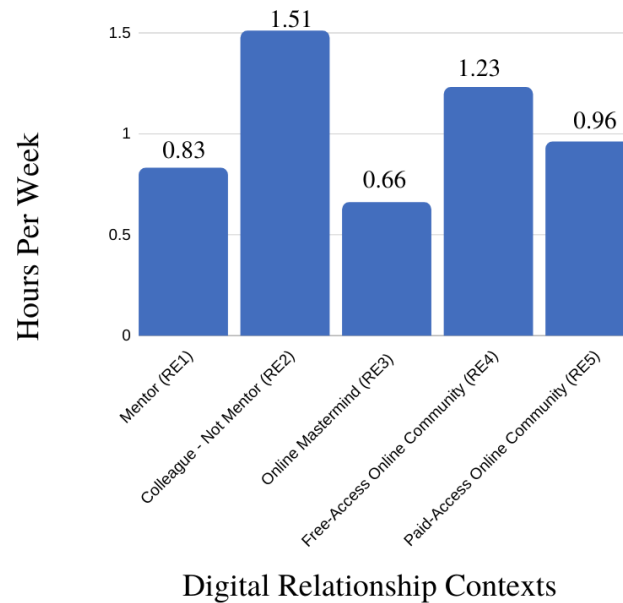
Figure 3.3. Average Activation of Digital Relationship Contexts

Activation of Contexts By Number of Participants. Tables 4.2 through 4.4 list each

digital context and the degree to which different contexts activated by survey respondents to

learn business skills. The column 'none' shows the percentage of respondents that indicated that

they did not activate the respective context at all. If respondents selected 1 or 2 (less than 2

hours) as their response, it was categorized as low activation. If respondents selected 3 or 4

(more than two hours, but less than four hours) as their response, it was categorized as moderate

activation. If respondents selected 5 (four or more hours) as their response, it was categorized as

high activation.

Number of Participants Activating Digital Activity Contexts. Table 3.2 shows more than half of the participants activated: conversations on social networking sites (n=38), conversations on private messaging platforms (n=35), and video conversations with others (n=26) for the purpose of learning business skills. Of the informal learning contexts, webinars were the least activated, and just over half of the survey respondents (n=24) reported that they did not typically participate in webinars.

The least activated contexts were the formal and non-formal learning contexts. Only four respondents reported that they spent time completing tasks for an online degree program offered by a college or university. Of the few who were taking an online course, the time spent in a typical week activating this context was high. Additionally, a sizable minority (n=19) reported completing tasks for a non-formal online course (a course not affiliated with a college or university).

Table 3.2

Activation of Digital Activity Contexts

Context	Variable Code	None	Low	Moderate	High
Conversations on social networking sites	DA1	9	26	10	2
Conversations using messaging platforms	DA2	12	28	5	2
Video conversations with others	DA3	21	20	4	2
Participating in interactive, real-time webinars	DA4	24	21	2	0
Completing tasks for an online degree program offered by a college or university	DA5	43	1	0	3
*Completing tasks for an online course that is not part of an online degree or diploma program	DA6	27	13	6	0

*missing value n=46

Number of Participants Activating Digital Resource Contexts. Table 4.3 shows the

number of participants that activated each digital resource context to a low, moderate, or high

extent. The most frequently activated digital resource contexts (activated by more than half of

participants) were: reading content posted by others on a social networking site (n=46), watching

informational videos (n=41), reading blog posts or online magazine articles (n=37), reading

email newsletters from industry experts (n=37), and listening to podcasts (n=27). Compared to

the other informal digital resource contexts, E-books were least activated, with only 12

participants reporting that they read E-books during a typical week.

Of the formal and non-formal digital resource contexts, few participants (n=5) reported

accessing course materials for an online degree program offered by a university or college or

MOOCs (n=4). Just over half of participants (n=24) reported accessing course materials for a

non-formal online course (not affiliated with a university).

Table 3.3

Activation of Digital Resource Contexts

Context	Variable Code	None	Low	Moderate	High
Content posted by others on a social networking site	DR1	1	21	13	12
Informational videos	DR2	6	27	10	4
Blog posts or online magazine articles	DR3	10	26	10	1
Podcasts	DR4	20	14	12	1
Email newsletters from industry experts	DR5	10	34	3	0
E-books	DR6	35	10	2	0
Course materials for an online degree program offered by a university or college	DR7	42	2	1	2
MOOCs	DR8	43	3	0	1
Course materials for an online course	DR9	23	15	5	4

that is not affiliated with a university

Number of Participants Activating Digital Relationship Contexts. The digital

relationship contexts that were activated by more than half of respondents were connecting with

another business professional (not a mentor) using digital technology (n=38), connecting with

other professionals in a free-access online community (n=29), and connecting with a mentor

using digital technology (n=27). The least activated digital relationship context was participating

in an online mastermind group (n=18).

Table 3.4

Activation of Digital Relationship Contexts

Context	Variable Code	None	Low	Moderate	High
Connecting with a mentor (pre-established mentoring relationship)	RE1	20	23	4	0
Connecting one-on-one with another business professional (not a pre-established mentor)	RE2	9	30	7	1
Participating in an online mastermind group	RE3	29	15	3	0
Connecting with other professionals in a free-access online community	RE4	18	21	7	1
Connecting with other professionals in a paid-access online community	RE5	24	17	4	2

In summary, most digital learning contexts were activated to a low extent or not activated

at all by the majority of participants. The least activated contexts were formal learning contexts:

completing tasks for an online degree program offered by a college or university, course

materials for an online degree program offered by a university or college, and MOOCs. Of the

contexts that showed higher levels of activation by participants, there was only one context for

which more than five participants reported high levels of activation: passive engagement with

content posted by others on a social networking site (12 participants reported high activation and 13 participants reported moderate activation). Passive engagement with social media content was the most activated context with all but one participant reporting that they activated this context to some extent.

Categorizing Participants by Digital Context Activation. To identify overall patterns of digital context activation, two summary scores were calculated for each respondent: the extent of time spent in all digital contexts to learn business skills and the extent of time spent in all digital contexts for other purposes. Each of these summary scores were calculated by computing the sum of each participant's responses to the questions related to the activation of contexts (digital activities, digital resources, and digital relationship experiences) in sections 2-4 of the survey.

The summary scores were used to categorize respondents by frequency of context activation and to identify what was typical among respondents. For example, to calculate the score for time spent in digital contexts to learn business skills, there were a total of 20 contexts listed on the survey (six digital activity contexts, nine digital resource contexts, and five digital relationship contexts). For each context, the highest number a participant could choose was 5 (four or more hours spent in the context in a typical week). Thus, the highest summary score that a participant could attain for time spent in digital contexts to learn business skills was 100. The same method of calculation was used for time spent in digital contexts for other purposes and the highest summary score that could be attained was also 100.

To identify typical and critical patterns of use, the percentiles for the data were calculated. Scores falling between the 25th and 75th percentile were categorized as typical and scores falling below the 25th percentile or above the 75th percentile were categorized as critical.

Time Spent in Contexts to Learn Business Skills. Consistent with the previous sections describing the activation of individual contexts, the overall extent of digital context activation to learn business skills was low. While the highest possible summary score was 100, the mean score for participants was 22. Participants with scores lower than 14 fell below the 25th percentile and were classified as low activators of digital contexts for learning business skills. The lowest score was five. Participants with scores higher than 30 fell above the 75th percentile and were classified as high activators of digital contexts for learning business skills. The highest score was 53. Participants with scores from 14 through 30 were classified as moderate activators of digital contexts for learning business skills and were considered to be typical cases.

Time Spent in Contexts for Other Purposes. Overall, the time participants spent in digital contexts for other purposes was comparable to the time spent to learn business skills. Again, while 100 was the highest possible score, the mean score was 24, showing that the typical activation of digital contexts for other purposes was low. Considering that the mean score for the time spent in contexts to learn business skills was 22, the mean score of 24 for time spent in contexts for other purposes indicated that participants were spending roughly as much time in digital contexts to learn business skills as they were for other purposes.

The typical range for scores for time spent in digital contexts for other purposes was between 17 (25th percentile) and 28 (75th percentile) and participants with scores within this range were considered moderate activators of digital contexts and typical cases. The lowest score was 3 and the highest score was 60.

Participants' Learning Ecologies: Competency Development

Exploring the extent to which respondents activated each context to develop business skills identified which contexts were preferred by the sample. To analyse the possibilities for

digital informal learning to support the capacity development of Canadian entrepreneurs who are mothers, an understanding of whether and how Canadian entrepreneurs who are mothers developed entrepreneurial competencies within these contexts was necessary. To investigate the extent to which participants were developing each of the entrepreneurial competencies (listed in the methodology chapter) and whether competency development differed by context, two analyses were performed: an analysis of the proportional data and an analysis of the raw scores.

Analysis of Proportional Data. Contexts that were activated by more than 50% of respondents (n>23) were selected for the analysis. For all of these contexts (listed in Table 3.5), the proportion of the valid cases (the number of participants who reported that they activated the context to develop business skills) that selected each possible response ('not at all', 'rarely', 'neutral', 'moderately', and 'a great deal') for the development of each entrepreneurial competency was calculated.

To determine the entrepreneurial competencies most frequently developed in each context, the proportion of respondents that selected 'moderately' or 'a great deal' was calculated. Competencies that were developed 'moderately' or 'a great deal' by more than 50% of valid cases were considered frequently developed. Table 3.5 lists the contexts that were activated by more than 50% of all participants and which competencies were developed 'moderately' or 'a great deal' by more than 50% of valid cases in those contexts.

Table 3.5

Frequently Developed Competencies in Frequently Activated Contexts

Contexts activated by more than 50% of total participants	Valid cases (n)	Competencies developed 'moderately' to 'a great deal' by more than 50% of valid cases
Having conversations on social networking sites (DA1)	38	PC2: To develop business relationships (95%)
		EC1: To develop ability to come up with new ideas and innovations (76%)

		EC2: To develop ability to take advantage of new opportunities (68%)
		MC3: To develop strategic planning abilities (58%)
		HRC4: To develop leadership skills (58%)
		MC2: To develop ability to create systems (55%)
Conversations using messaging platforms (DA2)	35	PC2: To develop business relationships (80%)
		EC2: To develop ability to take advantage of new opportunities (63%)
		EC1: To develop ability to come up with new ideas and innovations (54%)
Video conversations with others (DA3)	26	EC1: To develop ability to come up with new ideas and innovations (73%)
		PC2: To develop business relationships (69%)
		EC2: To develop ability to take advantage of new opportunities (69%)
		PC4: To develop confidence (54%)
		MC3: To develop strategic planning abilities (54%)
Content posted by others on a social network (DR1)	46	PC2: To develop business relationships (72%)
		EC1: To develop ability to come up with new ideas and innovations (67%)
		EC2: To develop ability to take advantage of new opportunities (61%)
Informational videos (DR2)	41	EC1: To develop ability to come up with new ideas and innovations (71%)
		PC4: To develop confidence (51%)
Blog posts or online magazine articles (DR3)	37	MC2: To develop ability to create systems (54%)

		MC3: To develop strategic planning abilities (51%)
Podcasts (DR4)	27	PC4: To develop confidence (63%)
		PC1: To develop communication skills (56%)
Email newsletters from industry experts (DR5)	37	EC2: To develop ability to take advantage of new opportunities (57%)
		MC3: To develop strategic planning abilities (51%)
Course materials for an online course that is not affiliated with a university or college (DR9)	24	MC2: To develop ability to create systems (71%)
		EC1: To develop ability to come up with new ideas and innovations (71%)
		MC3: To develop strategic planning abilities (67%)
		PC4: To develop confidence (59%)
Using digital technology to connect with a mentor (RE1)	27	MC3: To develop strategic planning abilities (74%)
		PC4: To develop confidence (67%)
		PC3: To develop perseverance (59%)
		EC1: To develop ability to come up with new ideas and innovations (59%)
		EC2: To develop ability to take advantage of new opportunities (56%)
		MC2: To develop ability to create systems (52%)
		HRC4: To develop leadership skills (52%)
Using digital technology to connect one-on-one with another business professional (not a mentor) (RE2)	38	PC2: To develop business relationships (89%)
		EC2: To develop ability to take advantage of new opportunities (76%)
		EC1: To develop ability to come up with new ideas and innovations (68%)

		MC3: To develop strategic planning abilities (55%)
Connecting with other professionals in a free-access online community (RE4)	29	PC2: To develop business relationships (86%)
		EC2: To develop ability to take advantage of new opportunities (69%)
		EC1: To develop ability to come up with new ideas and innovations (55%)

The results of the proportional analysis indicate that some entrepreneurial competencies were being developed more than others across all contexts. For example, more than 50% of valid cases reported activating nine of the 12 listed contexts 'moderately' or 'a great deal' to develop the ability to come up with new ideas and innovations (EC1). Other entrepreneurial competencies that were developed 'moderately' or 'a great deal' by more than 50% of valid cases in multiple contexts were:

- To develop the ability to take advantage of new opportunities (EC2) in eight out of 12 contexts

- To develop strategic planning abilities (MC3) in seven out of 12 contexts

- To develop business relationships (PC2) in six out of 12 contexts

- To develop confidence (PC4) in five out of 12 contexts

- To develop the ability to create systems (MC2) in four out of 12 contexts

- To develop leadership skills (HRC4) in two out of 12 contexts

The entrepreneurial competencies that did not appear in Table 3.5 should also be noted. Their absence from the table means that they were not activated 'moderately' or 'a great deal' by more than 50% of valid cases in any of the frequently activated contexts. These less developed competencies included the management competency of developing financial skills (MC1), the

entrepreneurial competency of developing one's ability to cope with risk (EC3), and three of the four human resource competencies: developing the ability to train employees (HRC1), developing the ability to manage other who work for you (HRC2), and developing hiring skills (HRC3).

Another important finding is that the types of competencies developed differs from context to context, as does the extent of competency development. Table 3.5 ranks the competencies in each context from high to low using the proportion of valid cases that developed the competencies 'moderately' or 'a great deal'. The top competency varies from context to context; however, certain competencies do appear as high ranking in several contexts. The following competencies ranked highest in several contexts:

- To develop business relationships (PC2) was the highest-ranked competency for having conversations on social networking sites (DA1), conversations using messaging platforms (DA2), scrolling through content posted by others on a social network (DR1), using digital technology to connect one-on-one with another business professional who was not a mentor (RE2), and connecting with other business professionals in a free-access online community (RE4).

- To develop the ability to come up with new ideas and innovations (EC1) was the highest-ranked competency for having video conversations with others (DA3) and watching informational videos (DR2).

- To develop the ability to create systems (MC2) was the highest-ranked competency for accessing blog posts or online magazine articles (DR3) and accessing course materials for a non-formal course (DR9).

When discussing the top competency in each context, it is important to note that the percentage of valid cases that developed the top competency 'moderately' or 'a great deal' varied considerably. As an example, the top competency developed when having conversations on social networking sites (DA1) was developing business relationships (PC2) at 95% of valid cases. Conversely, the top competency developed when accessing blog posts and online magazine articles (DR3) was developing the ability to create systems (MC2); however, this competency was only developed by 54% of valid cases.

If a competency was developed 'moderately' or 'a great deal' by over 75% of valid cases in a context, it was classified as being highly developed within that context. The following competencies met that classification in the following contexts:

- To develop business relationships (PC2) was developed by 95% of valid cases when having conversations on social networking sites (DA1)

- To develop the ability to come up with new ideas and innovations (EC1) was developed by 76% of valid cases when having conversations on social networking sites (DA1)

- To develop business relationships (PC2) was developed by 80% of valid cases when having conversations using messaging platforms (DA2)

- To develop business relationships (PC2) was developed by 89% of valid cases when using digital technology to connect one-on-one with another business professional who was not a mentor (RE2)

- To develop the ability to take advantage of new opportunities (EC2) was developed by 76% of valid cases when using digital technology to connect one-on-one with another business professional who was not a mentor (RE2)

- To develop business relationships (PC2) was developed by 86% of valid cases when

  connecting with other professionals in a free-access online community (RE4).

Thus, the most highly developed competency in numerous contexts was 'to develop business relationships' (PC2). The only other competencies that were highly developed, each in a single context, were 'to develop the ability to come up with new ideas and innovations' (EC1) and 'to develop the ability to take advantage of new opportunities' (EC2). No competencies were classified as being highly developed in most (eight out of 12) contexts.

Lastly, the number of competencies developed in each context varied. For example, six entrepreneurial competencies were developed 'moderately' or 'a great deal' through conversations on social networking sites (DA1) while only three competencies were developed 'moderately' or 'a great deal' through accessing content posted by others on a social network (DR1). The context with the highest number of competencies (seven) developed was using digital technology to connect with a mentor (RE1). Below, the contexts are ranked by the number of competencies that were developed 'moderately' to 'a great deal' by more than 50% of valid cases:

- Using digital technology to connect with a mentor (RE1), seven competencies

- Having conversations on a social networking site (DA1), six competencies

- Video conversations with others (DA3), five competencies

- Course materials for an online course that is not affiliated with a university or

  college (DR9), four competencies

- Using digital technology to connect one-on-one with another business

  professional (not a mentor) (RE2), four competencies

- Conversations using messaging platforms (DA2), three competencies

- Accessing content posted by others on a social network (DR1), three competencies

- Connecting with other professionals in a free-access online community (RE4), three competencies

- Informational videos (DR2), two competencies

- Blog posts or online magazine articles (DR3), two competencies

- Podcasts (DR4), two competencies

- Email newsletters from industry experts (DR5), two competencies

Analysis of Raw Scores. The raw scores highlight the total number of respondents that reported developing a competency 'moderately' or 'a great deal' within each context. To identify which contexts were most activated to develop each competency, the total number of respondents that reported developing that context 'moderately' or 'a great deal' was calculated. Below, each competency is listed along with the top three contexts in which that competency was developed (n= number of participants that reported developing that competency moderately to a great deal):

Communication Skills (PC1). The top contexts for developing communication skills were:

- RE2: using digital technology to connect one-on-one with another business professional who is not a mentor (n=16)

- DR2: informational videos (n=15)

- DR4: podcasts (n=15)

Business Relationship Skills (PC2). The top contexts for developing business

relationship skills were:

- DA1: conversations on social media (n=36)

- RE2: using digital technology to connect one-on-one with another business professional

    who is not a mentor (n=34)

- DR1: scrolling through social media (n=33)

Perseverance (PC3). The top contexts for developing perseverance were:

- DR1: scrolling through social media (n=16)

- RE1: using digital technology to connect with a mentor (n=16)

- RE2: using digital technology to connect one-on-one with another business professional

    who is not a mentor (n=16)

Confidence (PC4). The top contexts for developing confidence were:

- DR2: informational videos (n=21)

- DR1: scrolling through social media (n=19)

- RE2: using digital technology to connect one-on-one with another business professional

    who is not a mentor (n=19)

Developing Financial Skills (MC1). The top contexts for developing financial skills

were:

- DA1: conversations on social media (n=15)

- DR3: blog posts/online magazine articles (n=10)

- DR1: scrolling through social media (n=9)

Ability to Create Systems (MC2). The top contexts for developing the ability to create

systems were:

- DR1: scrolling through social media (n=22)

- DA1: conversations on social media (n=21)

- DR3: blog posts or online magazine articles (n=20)

Strategic Planning Abilities (MC3). The top contexts for developing strategic planning

abilities were:

- DA1: conversations on social media (n=22)

- RE2: using digital technology to connect one-on-one with another business professional
  who is not a mentor (n=21)

- RE1: using digital technology to connect with a mentor (n=21)

Ability to Come Up with New Ideas and Innovations (EC1). The top contexts for

developing the ability to come up with new ideas and innovations were:

- DR1: scrolling through social media (n=31)

- DA1: conversations on social media (n=29)

- DR2: informational videos (n=29)

Ability to Take Advantage of New Opportunities (EC2). The top contexts for developing the ability to take advantage of new opportunities were:

- RE2: using digital technology to connect one-on-one with another business professional who is not a mentor (n=29)

- DR1: scrolling through social media (n=28)

- DA1: conversations on social media (n=26)

Leadership Skills (HRC4). The top contexts for developing leadership skills were:

- DA1: conversations on social media (n=22)

- DR2: informational videos (n=18)

- RE1: using digital technology to connect with a mentor (n=14)

Less than 10 participants reported activating any context 'moderately' or 'a great deal' to develop the following contexts: ability to cope with risk (EC3), ability to train employees (HRC1), ability to manage others who work for you (HRC2), and hiring skills (HRC3). This was consistent with the findings from the analysis of the proportional data.

Since the survey was administered in a one-on-one structured interview format, participants occasionally made sidebar comments that were recorded and transcribed to add context to the quantitative data. Several sidebar comments provided possible explanations for lower competency development in some areas. For example, several participants noted that they were not currently developing some competencies because they had previously mastered those competencies. With regard to most of the human resource competencies (HRC1, HRC2, and

HRC3), many participants noted that they had no need to develop these competencies as their business was a solo operation.

Summary. In summary, competencies were developed to different extents within different contexts. Developing business relationships was the most developed competency. Social media, whether used actively through conversation with others (DA1) or passively via scrolling through content (DR1) was highly activated for competency development, including developing business relationships. Ultimately, the results provide ample evidence that digital learning contexts played a significant role in entrepreneurial competency development among survey participants.

Participants' Capacity Development

As described in the methodology chapter, eighteen variables were incorporated into the survey to measure capacity development. The research objective of this section of the survey was to explore the impact of participants' digital learning experiences on capacity development. To achieve this objective, participants rated the extent to which their overall digital learning experiences as an entrepreneur had impacted their business and, subsequently, other areas of their life. Specifically, participants were asked, "Have your digital learning experiences impacted your business in such a way that it has . . ." followed by the variable description.

Table 3.6 lists each variable along with the number of participants (n=47) that indicated disagreement, a neutral response, or agreement that their overall learning experiences as an entrepreneur had directly, or indirectly, had impacted that aspect of their life.

Table 3.6

Impact by Capacity Development Variable

Variable	Disagree	Neutral	Agree
Improved the time and resources that you have available to care for your physical health?	8	9	30

Improved the time and resources that you have available to care for your mental well-being?	4	5	38
Improved your ability to remove yourself from an unsafe situation (such as an abusive relationship or toxic business partnership), should the need arise?	6	18	23
Helped you to develop a strong business network that provides opportunities for business growth and advantage?	0	2	45
Helped you to receive improved support from family and friends with regard to your role as a business owner?	9	9	29
Increased your likelihood of participating in policy development for female entrepreneurs?	12	13	22
Increased your likelihood of taking advantage of other opportunities to educate yourself further as a business owner?	1	0	46
Helped you to have the support and resources to get help with domestic tasks or childcare, if desired?	5	14	28
Helped you to pay yourself an appropriate salary when considering your profession, your level of experience, and the nature of the products or services you provide?	3	10	34
Improved your ability to live in a home and neighbourhood of your choosing?	10	12	25
Helped you to overcome feelings of isolation in your role as an entrepreneur?	6	4	37
Helped you to develop support and resources to attend local business-related meetings and events?	4	2	41
Helped you to develop support and resources to travel broadly for business purposes?	13	11	23
Improved the time and resources that you have available to participate in preferred leisure activities?	4	9	34
Improved your freedom and support to work during preferred times?	1	3	43
Improved your freedom and support to pursue leisure activities at preferred times?	4	8	33
Helped you to feel respected by others?	1	12	34
Improved your ability to make independent decisions about what is best for you?	3	3	41

The responses indicate that, among participants, digital learning experiences impacted some aspects of capacity development to a greater extent than others. Over 85% of participants

agreed to some extent that their online learning experiences impacted the following aspects of

capacity development:

- Increased their likelihood of taking advantage of other opportunities to educate

  themselves further as a business owner? (97% agreed)

- Helped them to develop a strong business network that provides opportunities for

  business growth and advantage? (95% agreed)

- Improved their freedom and support to work during preferred times? (91% agreed)

- Helped them to develop support and resources to attend local business-related meetings

  and events? (87% agreed)

- Improved their ability to make independent decisions about what is best for them? (87%

  agreed)

For most variables, the majority of participants agreed that their online learning

experiences positively impacted their business, which had a spillover effect to other aspects of

their life. There were no variables for which the majority of participants reported disagreement.

For the following variables, a slight majority of participants selected a neutral response or

indicated disagreement when asked about the impact of their digital learning experiences on

aspects of capacity development:

- Helped them to develop support and resources to travel broadly for business purposes

  (28% disagreed, 23% neutral)

- Ability to remove themselves from an unsafe situation (such as an abusive relationship or

  toxic business partnership), should the need arise (38% neutral, 13% disagreed)

- Increased their likelihood of participating in policy development for female entrepreneurs

(28% neutral, 26% disagreed)

When considering participants' responses to their business revenue, compared to their capacity development scores, a paradox was identified. Although 72% of participants agreed to some extent that their online learning experiences impacted their business in such a way that they were able to pay themselves an appropriate salary, only 55% of respondents reported having a business revenue of more than $30 000 per year. Sidebar comments made during the interviews provided some insight. For example, several participants noted that their business was newly launched or pre-launch, and their revenue from the past twelve months was not an accurate reflection of their predicted income for the next twelve months. One participant also described extraordinary circumstances that had reduced her income temporarily.

Overall Capacity Development Scores. To perform comparisons of capacity development among participants (and to determine critical and typical cases with regard to capacity development) an overall capacity development (CD) score was calculated for each participant. Individual capacity development scores were calculated by computing the sum of their responses to the eighteen questions in the capacity development section of the survey. With this strategy, the highest score that a participant could potentially attain would be CD=90. An individual CD score was calculated for each participant and the percentiles for this score were calculated. Scores falling between the 25th and 75th percentile were deemed typical and scores falling below the 25th percentile or above the 75th percentile were considered critical.

The mean capacity development score for participants was 70. Given that the highest possible score was 90, the average was comparatively high. This meant that scores considered low (below the 25th percentile) still reflected a moderate to high level of capacity development.

Participants with scores lower than 66 fell below the 25th percentile and were classified as low capacity development cases. The lowest capacity development score was 55. Participants with scores higher than 76 fell above the 75th percentile and were classified as high capacity development cases.

Cross-tabulations were performed to check whether any patterns emerged between the capacity development summary variable and 1) demographic variables and 2) the extent to which respondents activated contexts to develop business skills. Most demographic variables did not show any relevant patterns in relation to the capacity development scores. In particular, the results from the cross-tabulation between capacity development and annual business revenue revealed that there were participants with a high capacity development score and low business revenue and participants with a low capacity development score and high business revenue. This finding supports the use of an instrument that measures various aspects of an entrepreneur's life to assess capacity development rather than making conclusions about success on business revenue alone.

To investigate the relationship between capacity development and context activation, cross-tabulations were performed between the capacity development scores (grouped into low, typical, and high cases) and 1) the summary scores for context activation to learn business skills (grouped into low, typical, and high cases) and 2) the summary scores for context activation for other purposes (grouped into low, typical, and high cases). The findings showed that typical capacity development cases were most likely to have typical context activation scores for time spent in digital contexts to learn business skills and time spent in contexts for other purposes. No other significant relationships were found.

Qualitative Survey Results

At the end of the survey, each participant was asked the following question: Is there anything else you would like to share about your learning experiences as an entrepreneur? Forty-one participants provided an answer to this question and a thematic analysis was performed on their responses.

Five overarching themes emerged from the participants' responses: purpose, preferences, resources, change over time, and nature of learning. Table 3.7 provides a description of each theme and the number of participants that mentioned the theme.

Table 3.7

Overarching Themes from Open-Ended Survey Question

Theme	Description	Count
Purpose	Reasons for engaging in learning experiences and what motivated engagement as a learner.	n = 5
Preferences	Learning preferences expressed by participants.	n = 7
Resources	Remarks that were related to resources	n = 6
Change over time	How participants' learning experiences and learning needs have changed over time.	n = 9
Nature of learning	Participants described the ways in which they had developed entrepreneurial competencies (see Table 3.8)	n = 24

Twenty-four participants talked about the nature of their learning experiences in their response to the open-ended question. Within their remarks, seven additional sub-themes emerged describing the ways in which they learned.

Table 3.8

Sub-Themes for 'Nature of Learning'

Theme	Description	Count
Incidental	Learning occurred as a result of one's experiences such as trial and error or through passive consumption of content.	n = 9
Integrated	Learning occurred while participants were engaged in other aspects of their business and their lives.	n = 6

Limited	Time and/or opportunities for learning were constrained by external factors.	n = 5
Ongoing	Learning continued to occur throughout participants' entrepreneurial journey.	n = 4
Relational	Learning occurred as a result of interactions with others.	n = 4
Self-directed	Participants intentionally activated learning contexts for specific purposes.	n = 4

The findings from the thematic analysis of the open-ended survey question indicated that participants engage in digital learning experiences for a variety of purposes and that individual learners have different learning preferences that change over time. With regard to the purposes of engaging in a learning experience, participant responses highlighted that they had different self-identified learning needs at different times in their entrepreneurial journey. As mentioned previously, some entrepreneurs stated that they were not currently working on developing certain entrepreneurial competencies because they had mastered them through previous learning experiences. When asked if there was anything else she'd like to tell me about her learning experiences as an entrepreneur, one respondent stated, "I think just the caveat of me having an MBA so when you talk business skills, I learned so much of that in the MBA. But I imagine if I didn't have that [MBA] I would be all over digital learning for business skills. For now, I don't feel like I've had to do that."

Participants also had different learning preferences. Some preferred online learning experiences, while others preferred learning experiences where they could connect with others in-person. One participant remarked, "Digital learning does make it easier because you don't have to physically leave your house." She added, "So when you've got small children, it's a benefit." Another echoed the sentiment of online learning being preferred saying, "Thank God for online. That's all I gotta say. Seriously, I wouldn't have been able to do any of it. Any of what I'm doing if it wasn't online."

At the same time, several participants expressed a preference for in-person learning. One participant described her preference for in-person learning, stating, "I've always gravitated toward in-person learning. It's not like I'm not motivated but I just think I get more out of it when I'm in a group setting with other people I can talk to and percolate the information with." Another participant mentioned that she preferred making online connections with others who lived in close geographical proximity so that she could connect both in-person and online with the people in her learning network.

Of the participants that mentioned resources in their response to the open-ended question, a few expressed a preference for (and a desire for) Canada-specific resources. One participant, when expressing frustration about inconsistency in the quality of resources for Canadian entrepreneurs who are mothers noted, "part of the issue for the one I signed up for [referring to a non-formal online course] is that they are offered by American experts and they are offering systems that work well in American culture . . . and they did not translate well to Canada." Her comment was seconded by another participant who remarked, "For smaller businesses, there's not enough out there . . . and a lot of the stuff is American. There's not a lot in Canada for small women entrepreneurs and you have to kind of, it's like trial by error."

Overall, the qualitative data from the open-ended responses highlighted the individualized nature of learning and the heterogeneity within the sample. Learning needs and motivations changed over time and were not necessarily consistent from week to week, month-to-month, or year-to-year. Participants expressed that there were time constraints on their learning, particularly due to the demands of parenting and managing the day-to-day operations of their business. To quote one participant who stated what those developing learning resources for entrepreneurs with kids need to know: "make it short and get to the point."

The types of informal learning described by participants included incidental learning (learning unintentionally through experience, either passively or through trial and error), relational learning (learning through connection with others), and self-directed (intentional) learning. For example, one participant described learning incidentally via social media stating, "If somebody posts something that's helpful, I'll read it, but I'm not necessarily on it [social media] for that purpose." Another participant's comment explained how she learned incidentally and relationally. She said, "I think probably the best way to learn is just by doing it . . . I think the more you talk to people about starting a business, there are so many people that have experiences with it and they share that with you, so it's almost as if you're absorbing as you go along."

Lastly, the open-ended responses indicated that learning did not happen in a silo, rather it was integrated into their daily work and parenting tasks. One participant noted, "I actually could not have done the things I needed to do as a mom and to do my business without online education . . . I could do it [online education] around their sleeping or breastfeeding or you know, whatever. So I could continue furthering my education and business goals and still be able to parent and that was really important to me."

Case Study Results

From the analysis of the survey results, two typical cases and two critical cases were selected for the case study stage of the research. The following variables were determined to be the most relevant to guide the case study selection: (1) the capacity development summary score and (2) time spent in digital contexts to learn business skills. Due to the ethnographic nature of the research and the need for rich, explanatory data, the rapport established during the first

interview and participant responses to the open-ended survey question was also considered when selecting the four case studies.

Each case study participant participated in a semi-structured interview (described in the methodology chapter) and a content analysis was performed on the interview transcripts. The codebook for the content analysis consisted of the survey variables and the themes that emerged from the thematic analysis of the open-ended survey question. Each transcript was broken down into contextual units with each full response to a question being a contextual unit: the counts represent the number of contextual units in which the code appeared.

During the semi-structured interview, case study participants were also asked to name any digital resources that they found useful. These resources were examined as part of the analysis. Additionally, the survey results for each case study participant were re-examined and compared to their case study data. The individual findings for each case are described below, followed by the collective findings from the qualitative stage.

Critical Case Selection

Capacity development scores and time spent activating digital contexts to learn business skills were the main variables that influenced the selection of critical cases. To understand the impact of digital learning experiences on capacity development, the decision was made to select two cases with higher than average context activation for learning business skills. One case should have a high capacity development score, the other a low capacity development score.

Miranda was selected as the critical case representing high capacity development. She had an overall capacity development score of 84, which was the second-highest capacity development score among survey respondents; however, her score for activation of digital contexts to develop business skills was 13, below the 25th percentile. Thus, Miranda was a

critical case in terms of high capacity development and low context activation to learn business skills. Her business revenue was also one of the highest recorded among participants.

For the critical case representing low capacity development, Brittany's case stood out from the other low capacity development cases. She had an overall capacity development score of 66, placing her at the 25th percentile for capacity development; however, her business revenue was between \$30 000 to \$99 999, which is considered moderate, not low. In contrast to Miranda, Brittany had a score of 30 for time spent activating digital contexts to learn business skills, which was above the 75th percentile. The primary reason that Brittany was selected as a critical case was the paradox between Brittany's low capacity development score, her average business revenue, and her high activation of digital learning contexts.

Typical Case Selection

While the identification of cases that were outliers guided the process for critical case selection, cases that fell within the 25th to 75th percentiles were examined for the selection of typical cases.

Beth was identified as having a typical score for capacity development (72) and for the activation of digital contexts to learn business skills (18). Although her capacity development score was typical, her business revenue was low (below \$30 000 per year). However, having a low business revenue was not atypical as 43% of survey respondents reported having an annual business revenue in this range.

The cross-tabulation data showed that cases with typical capacity development scores tended to have typical context activation scores. Thus, to gain a richer understanding of the variance in context activation the final case selected had a mix of typical and critical scores. Eve's was selected because while her capacity development score was typical (69), her activation

of digital contexts to learn business skills was above the 75th percentile (34). Her income was in the moderate range (between $30 000 to $99 999), which represented 30% of survey respondents.

Case Descriptions

In this section, each of the case study participants is described. An overview of their survey responses is provided and the results of the interviews are detailed.

Miranda. Miranda reported owning a business related to health and wellness, with a high business revenue (over $100 000 per year). At the time of the interview, she had run her business for more than 10 years and had no employees. She was also involved in more than one business venture. Her two children ranged from elementary school-aged to high school-aged at the time of the interview and she reported being in a married/common-law relationship.

Quantitative Survey Results. Miranda's quantitative survey results indicated that her digital learning experiences were highly focused on developing specific competencies. In particular, Miranda's learning experiences centred on developing her ability to create systems, the development of her strategic planning abilities, her ability to come up with new ideas and innovations, and her ability to take advantage of new opportunities.

According to the data collected during the survey stage, the only context that Miranda activated for more than two hours per week was using digital technology to connect with a mentor (RE1). Within this context, Miranda reported that she developed the following competencies moderately: developing perseverance (PC3), developing confidence (PC4), and developing the ability to take advantage of new opportunities (EC2). She also reported developing the following competencies a great deal when connecting with a mentor using digital

technology: developing the ability to create systems (MC2), developing her strategic planning abilities (MC3), and developing her ability to come up with new ideas and innovations (EC1).

Table 3.9 shows the less activated contexts in which Miranda reported developing certain competencies a great deal.

Table 3.9

Miranda's Competency Development in Less Activated Contexts

Competency Developed a Great Deal	Context(s) in which Competency was Developed
To develop business relationships (PC2)	Using digital technology to connect one-on-one with another business professional (not a mentor) (RE2)
To develop ability to create systems (MC2)	Video conversations with others (DA3)
	Participating in interactive, real-time webinars (DA4)
	Course materials for an online course that is not affiliated with a university or college (DR9)
To develop strategic planning abilities (MC3)	Video conversations with others (DA3)
	Course materials for an online course that is not affiliated with a university or college (DR9)
To develop ability to come up with new ideas and innovations (EC1)	Video conversations with others (DA3)
	Participating in interactive, real-time webinars (DA4)
	Content posted by others on a social network (DR1)
	Informational videos (DR2)
	Blog posts or online magazine articles (DR3)
	Email newsletters from industry experts (DR5)
	Course materials for an online course that is not affiliated with a university or college (DR9)
	Using digital technology to connect one-on-one with another business professional (not a mentor) (RE2)

To develop ability to take advantage of new opportunities (EC2)	Connecting with other professionals in a free-access online community (RE4)
	Video conversations with others (DA3)
	Participating in interactive, real-time webinars (DA4)
	Content posted by others on a social network (DR1)
	Informational videos (DR2)
	Blog posts or online magazine articles (DR3)
	Email newsletters from industry experts (DR5)
	Course materials for an online course that is not affiliated with a university or college (DR9)
	Using digital technology to connect one-on-one with another business professional (not a mentor) (RE2)
	Connecting with other professionals in a free-access online community (RE4)

Overall, Miranda's quantitative results indicated that her learning experiences were highly focused on developing specific competencies, particularly developing her ability to create systems (MC2), developing her strategic planning abilities (MC3), developing her ability to come up with new ideas and innovations (EC1), and developing her ability to take advantage of new opportunities (EC2). In her open-ended response for the quantitative survey, Miranda remarked that she "was happy to have online learning available to me".

Qualitative Case Study Results. The content analysis of Miranda's follow-up interview transcript revealed that her digital learning experiences continued to emphasize a focused development of her management competencies and entrepreneurial competencies. Consistent with the quantitative survey results, the analysis of Miranda's interview transcript indicated that her learning experiences centred around developing her ability to create systems (MC2) and her

strategic planning abilities (MC3). She also mentioned in her response to the question about how her learning experiences had evolved over time that she looked online "at what other people have done to create a business and how I could [do the same]", which was coded as learning through observation to develop her ability to come up with new ideas and innovations (EC1). Throughout the interview, Miranda's remarks suggested that she was at a stage in her business where developing systems had become a priority and the competencies she was currently developing through her learning experiences are reflective of that.

In describing how her learning changed over time, Miranda also noted how her learning shifted from observational (finding others with similar business models and observing what they were implementing) to relational (reaching out and asking others specific questions about their implementation strategy). She also indicated throughout the interview that her learning tends to be self-directed and she was intentionally seeking resources that would help her develop the management competencies and entrepreneurial competencies mentioned above.

In her responses to several questions, Miranda said that the volume of resources on the Internet created a sense of overwhelm, which she identified as a barrier to her learning. One comment illustrated how an increase in the available resources over time contributed to this overwhelm. Miranda said: "There is more stuff that's available online almost to a fault. There's so much now, it's harder to digest. Before you were kind of like, is anybody talking about this? And now, oh my god, who do I pay attention to? There's so many?"

The other barrier to learning identified by Miranda related to time. She said, "So sitting down and listening to a webinar or joining a coaching program that I have to commit time to, is time away from other things that I would need to do in my business."

The codes related to learning contexts in Miranda's transcript revealed a preference for video-based technologies. The primary learning experiences that she discussed were online programs run by business or industry coaches that integrated webinars, one-on-one video conferences, and online course materials (including informational videos). Again, these results are consistent with Miranda's quantitative survey results.

Miranda also explicitly remarked that she had a preference for online learning and discussed the positive impact that access to online learning had on her business (and her life). She stated that she preferred how online learning gave her the ability to work at her own pace and to re-watch and re-listen to materials. She stated, "Online, I feel like I have more control. I can go at my own pace. I can do it when I am focused and ready for it." She added that when her children were younger, the flexibility of online learning and the lower cost of online learning was beneficial. She said, "I'm incredibly grateful that online learning is around because I don't think I would be where I am if I didn't have those options available to me. I think the main point is that it has been a huge piece of me being able to build a business to have access to online learning."

Brittany. Brittany's company offers B2B services. At the time of the interview, she had operated her business for less than three years and had no employees. Brittany reported being involved in more than one business venture and she had a moderate business revenue ($30 000 to $99 999 per year). Brittany had one elementary school-aged child and was in a married/common-law relationship.

Although Brittany was identified as having a low capacity development score, it is important to remember that this is a comparative score and that the low capacity development scores were not overly low, in general. Further, the range for capacity development scores was not large. Brittany's capacity development score was 66, which is at the 25th percentile;

however, the mean for capacity development scores was 70, a difference of only four points. Thus, although Brittany's capacity development score was low, it is not indicative of hardship. Rather, it is reflective of an 'agree somewhat' response versus an 'agree strongly' response to most questions in the capacity development section of the survey.

Quantitative Survey Results. Being that Brittany had a high score for context activation, she activated multiple contexts more than two hours per week to develop business skills. Table 3.10 lists the contexts that Brittany activated more than two hours per week to develop business skills, the competencies that she developed moderately in each of these contexts, and the competencies that she developed a great deal in each context.

Table 3.10

Brittany's Competency Development in Frequently Activated Contexts

Context	Competencies Developed Moderately	Competencies Developed a Great Deal
Video conversations with others (DA3)	To develop communication skills (PC1)	n/a
	To develop business relationships (PC2)	
	To develop strategic planning abilities (MC3)	
	To develop ability to come up with new ideas and innovations (EC1)	
	To develop ability to take advantage of new opportunities (EC2)	
Accessing content posted by others on a social network (DR1)	To develop communication skills (PC1)	n/a
	To develop confidence (PC4)	
	To develop ability to create	

	systems (MC2)	
	To develop strategic planning abilities (MC3)	
	To develop ability to come up with new ideas and innovations (EC1)	
	To develop ability to take advantage of new opportunities (EC2)	
	To develop ability to cope with risk (EC3)	
Blog posts or online magazine articles (DR3)	To develop communication skills (PC1)	To develop ability to take advantage of new opportunities (EC2)
	To develop perseverance (PC3)	
	To develop confidence (PC4)	
	To develop strategic planning abilities (MC3)	
	To develop ability to come up with new ideas and innovations (EC1)	
	To develop ability to cope with risk (EC3)	
Using digital technology to connect one-on-one with another business professional (not a mentor) (RE2)	To develop communication skills (PC1)	To develop ability to take advantage of new opportunities (EC2)
	To develop business relationships (PC2)	
	To develop perseverance (PC3)	
	To develop confidence (PC4)	
	To develop strategic planning abilities (MC3)	
	To develop ability to come up	

	with new ideas and innovations (EC1)	
	To develop ability to cope with risk (EC3)	
Connecting with other professionals in a free-access online community (RE4)	To develop communication skills (PC1)	To develop ability to take advantage of new opportunities (EC2)
	To develop business relationships (PC2)	
	To develop perseverance (PC3)	
	To develop confidence (PC4)	
	To develop ability to create systems (MC2)	
	To develop strategic planning abilities (MC3)	
	To develop ability to come up with new ideas and innovations (EC1)	
	To develop ability to cope with risk (EC3)	

Brittany reported developing four competencies a great deal in other, less activated, contexts. She reported developing business relationships (PC2) and developing her confidence (PC4) a great deal when having conversations using messaging platforms (DA2). She also reported developing her ability to take advantage of new opportunities (EC2) a great deal when having conversations using messaging platforms (DA2), when listening to podcasts (DR4), when accessing course materials for a non-formal online course (DR9), and when connecting with other professionals in a paid-access online community (RE5). Lastly, she reported developing her ability to cope with risk (EC3) a great deal through conversations with others on social

networking sites (DA1), through informational videos (DR2), and when connecting with other professionals in a paid-access online community (RE5).

Overall, the competency that Brittany most frequently developed a great deal was her ability to take advantage of new opportunities (EC2). Her results show that she developed this competency a great deal in seven contexts and moderately in an additional two contexts.

In her response to the open-ended question for the quantitative survey, Brittany referred to herself as a "serial course purchaser" which she noted was expensive. She provided the following rationale: "I think it comes from a mindset place of scarcity and feeling like you need confirmation that you know how to do something when really you do." She added, "I think there are lots of opportunities out there, it's just about being discerning about what the best value is."

Qualitative Case Study Results. The content analysis of Brittany's follow-up interview transcript indicated that her learning experiences encompass the development of a broad range of competencies. Almost all personal, management, and entrepreneurial competencies were mentioned multiple times during her interview. The nature of Brittany's learning appears to be integrated and experiential, meaning that she is learning while performing work-related tasks and she often mentioned how she learned through her experiences as an entrepreneur. For example, Brittany remarked, "There's a lot of legitimate nuggets of things that I've learned, but I've also learned through the process that sometimes you just really need more implementation. You don't need more information, you need to do something with it."

Brittany also frequently mentioned the impact of developing confidence, which she linked to mindset, throughout the interview. In particular, courses that Brittany took, run by business coaches, emphasized the importance of mindset in achieving business success. For example, Brittany stated how developing her confidence empowered her to set boundaries to

avoid clients and projects that drained her energy. She described how increased confidence led

her to become better at making hard decisions like breaking up with a client, "because of

differences in philosophy and boundaries around how I want to communicate and how I want to

be communicated with." She continued, "And that's something I never could have done before.

But I was just like 'no'. It's the difference between a job that's a paycheck and a job that's a

payday loan." Brittany linked this to her purpose for continuing to activate learning opportunities

to develop entrepreneurial skills stating, "And I need to do that more to support my learning

because I'm not going to be able to learn more and grow more if I keep putting up with the same

crap. And if I don't put in better boundaries and I don't put in better policies."

With regards to Brittany's primary learning contexts, she mentioned activating numerous

contexts over the course of the interview including social media (conversations, passive

scrolling, and private groups for entrepreneurs), webinars, blog posts and online magazine

articles, podcasts, and online courses run by business coaches. It is important to note the

integrated nature of these learning experiences. For instance, Brittany described webinars that

were part of her online courses being delivered as live videos within a group on Facebook.

Beth. Beth's business related to health and wellness and she operated her business as a

solo-entrepreneur, with no employees. At the time of the quantitative survey, Beth had been in

business for more than five years and she was involved in more than one venture including work

as an independent distributor for a multi-level marketing organization. Her annual business

revenue for the past year was low (less than $30 000), but she noted that it had been higher in the

past. When responding to questions for the qualitative case study interview, Beth commented

that she was no longer pursuing the multi-level marketing opportunity, but she was continuing

with her original health and wellness business. Beth had three children who were all elementary school-aged and was in a married/common-law relationship.

Quantitative Survey Results. Beth's survey results showed that she activated three contexts for more than two hours per week. She did not report developing any competencies a great deal in these contexts, but she did report developing several competencies moderately. The contexts that Beth activated for more than two hours per week, and the competencies that she developed moderately in these contexts, were: content posted by others on a social network (DR1) to develop her ability to manage others who worked for her (HRC2) and to develop her leadership skills (HRC4); informational videos (DR2) to develop her leadership skills (HRC4); and podcasts (DR4) to develop her communication skills (PC1), to develop her perseverance (PC3), to develop her confidence (PC4), to develop her ability to manage others who worked for her (HRC2) and to develop her leadership skills (HRC4).

Although Beth did not develop any competencies a great deal in her most activated contexts, she developed multiple competencies a great deal in other, less activated contexts. Table 3.11 lists the competencies that Beth developed a great deal and the lesser activated contexts in which these competencies were developed.

Table 3.11

Beth's Competency Development in Less Activated Contexts

Competency Developed a Great Deal	Context(s) in which Competency was Developed
To develop business relationships (PC2)	Conversations with others using messaging platforms (DA2)
To develop perseverance (PC3)	Conversations with others using messaging platforms (DA2)
To develop confidence (PC4)	Having conversations on social networking sites (DA1)
	Participating in an online mastermind group (RE3)

To develop financial skills (MC1)	Having conversations on social networking sites (DA1)
	Using digital technology to connect one-on-one with another business professional (not a mentor) (RE2)
	Participating in an online mastermind group (RE3)
To develop ability to create systems (MC2)	Using digital technology to connect one-on-one with another business professional (not a mentor) (RE2)
	Participating in an online mastermind group (RE3)
To develop strategic planning abilities (MC3)	Using digital technology to connect one-on-one with another business professional (not a mentor) (RE2)
To develop ability to come up with new ideas and innovations (EC1)	Using digital technology to connect one-on-one with another business professional (not a mentor) (RE2)
To develop ability to train employees (HRC1)	Participating in an online mastermind group (RE3)
To develop ability to manage others who work for you (HRC2)	Video conversations with others (DA3)
	Using digital technology to connect one-on-one with another business professional (not a mentor) (RE2)
To develop hiring skills (HRC3)	Using digital technology to connect one-on-one with another business professional (not a mentor) (RE2)
To develop leadership skills (HRC4)	Video conversations with others (DA3)
	Using digital technology to connect one-on-one with another business professional (not a mentor) (RE2)
	Participating in an online mastermind group (RE3)

Beth's case was unique as she was one of the few survey participants that reported

developing her ability to manage others who worked for her (HRC2). Overall, her competency

development was very well-rounded. The only competencies that she did not develop 'a great

deal' in any contexts were her ability to take advantage of new opportunities (EC2) and her ability to cope with risk (EC3).

Beth's response to the open-ended question at the end of the survey indicated that social media presents a paradox for her: she remarked that she felt connected to others online because she can relate to experiences shared by others but, at the same time, she felt alienated from people through social media because, for her, it creates feelings of inadequacy.

Qualitative Case Study Results. Beth was one of only a few participants in the study that reported developing human resource competencies, both in the quantitative survey and in the qualitative interview. The development of these competencies was related to her secondary venture as an independent distributor for a multi-level marketing organization, which she had discontinued at the time of the interview saying, "The release of that [discontinuing the multi-level marketing venture] has been a really great feeling. Feeling like I don't need to train anybody. I don't need to keep anybody up to date on something. I don't need to pass on this and make sure people know about that, and I don't enjoy that."

Since the quantitative survey, she noted that she was no longer activating digital contexts to learn about business development, but she was still continuing to develop personal competencies. In particular, Beth mentioned working on mindset, which was coded as developing confidence. For Beth, one of the most impactful learning experiences as an entrepreneur was participating in a program with both online and offline components. Beth described how this program impacted her in terms of both her business and overall capacity development: "Those training courses that I took were the most life-changing. And it is across the board learning. It impacted every area of my life bigger than anything else." She added, "In fact, I would probably still be trying to slog along through [multi-level marketing venture] and be

very unhappy about it if I hadn't gone there. Because they helped me to realize that this isn't bringing joy no matter how you change it, no matter how you try to cram yourself into it, it's just not going to bring you joy." She concluded, saying, "I had to stop wishing that I could make six-figures and just say, 'that's not who you are'. And those trainings did that for me."

Although Beth's activation of learning contexts had decreased since the survey, she still activated similar contexts for the development of personal competencies. She noted, "It doesn't really matter what it is that I'm leaning into, whether it's my personal life or business or whatever it is. I will go and look in the same places for those sources of information because it's where I feel comfortable."

Eve. Eve has owned a business in the arts and culture industry for more than 10 years. Like the other participants, she had no employees. She reported being involved in more than one business venture and her income was in the moderate range ($30 000 to $99 999). Eve had two children, who ranged from elementary school-aged to high school-aged and was in a married/common-law relationship.

Quantitative Survey Results. On the quantitative survey, Eve reported activating all digital activity contexts during an average week, except completing tasks for an online degree program offered by a college or university. Most digital activity contexts were activated for one hour or less to learn business skills; however, Eve reported spending more than one hour, but not more than two hours per week on completing tasks for an online course that was not part of a degree or diploma program.

Eve reported a higher activation of digital learning resources on the survey. On an average week, she spent four or more hours accessing content posted by others on a social network, more than three hours reading ebooks, and more than two hours accessing

informational videos as well as course materials for an online course (not affiliated with a

college or university). She also spent more than one hour per week accessing blog posts or online

magazine articles and email newsletters from industry experts. She did not access podcasts,

materials for a college or university course, or MOOCs.

In terms of digital relationship experiences, Eve activated all contexts within a typical

week to learn business skills; however, she spent the most time using technology to connect with

a mentor (more than two hours), using technology to connect one-on-one with other business

professionals, and connecting with other professionals in a free-access online community.

Table 3.12 illustrates Eve's competency development within her most activated contexts

(contexts which Eve activated more than two hours per week).

Table 3.12

Eve's Competency Development in Frequently Activated Contexts

Context	Competencies Developed Moderately	Competencies Developed a Great Deal
Content posted by others on a social network (DR1)	To develop communication skills (PC1)	n/a
	To develop business relationships (PC2)	
	To develop confidence (PC4)	
	To develop ability to come up with new ideas and innovations (EC1)	
	To develop ability to take advantage of new opportunities (EC2)	
Informational videos (DR2)	To develop confidence (PC4)	To develop ability to come up with new ideas and innovations (EC1)
	To develop strategic planning abilities (MC3)	
E-books (DR6)	To develop ability to create	To develop ability to come up

	systems (MC2)	with new ideas and innovations (EC1)
	To develop strategic planning abilities (MC3)	
	To develop ability to take advantage of new opportunities (EC2)	
Course materials for a non-formal online course (DR9)	To develop confidence (PC4)	n/a
	To develop ability to create systems (MC2)	
	To develop strategic planning abilities (MC3)	
	To develop ability to come up with new ideas and innovations (EC1)	
	To develop ability to take advantage of new opportunities (EC2)	
Using digital technology to connect with a mentor (RE1)	To develop ability to create systems (MC2)	n/a
	To develop strategic planning abilities (MC3)	
	To develop ability to come up with new ideas and innovations (EC1)	
	To develop ability to take advantage of new opportunities (EC2)	

Eve also reported developing four competencies a great deal in her less activated,

contexts. She reported developing her business relationships (PC2), her perseverance (PC3), her

ability to come up with new ideas and innovations (EC1), and her ability to take advantage of

new opportunities (EC2) a great deal via having conversations on social networking sites. She

also reported developing her ability to come up with new ideas and innovations (EC1) a great

deal through blog posts or online magazine articles (DR3). Lastly, Eve reported developing her

ability to take advantage of new opportunities (EC2) a great deal in the following additional

contexts: conversations using messaging platforms (DA2), completing tasks for a non-formal

course (DA6), blog posts or online magazine articles (DR3), and email newsletters from industry

experts (DR5).

Overall, Eve's survey results indicated an emphasis on developing her ability to come up

with new ideas and innovations (EC1) and her ability to take advantage of new opportunities

(EC2). She developed both of these entrepreneurial competencies a great deal in multiple

contexts.

Eve's response to the open-ended question at the end of the survey reflected a desire for

more Canadian resources. She also noted that having her own home-based business was "best

for our family so I can be here for whatever", highlighting how it enabled her to balance work

and family demands.

Qualitative Case Study Results. During the interview, Eve's description of her learning

experiences centred on the development of management competencies and personal

competencies. She noted that experiences where she learned about setting up her business better

were most valuable, followed by experiences that helped her to develop her confidence and to

recognize the value of her work. In particular, she mentioned developing these skills within the

context of online programs run by business coaches who offered industry-specific coaching. In

terms of the digital contexts integrated into these courses, Eve described taking one course that

was primarily video lessons and another that was primarily text-based content.

Eve also commented in her responses how her learning has been experiential, stating, "sometimes you don't know what the best practice was until you've been doing it for 10 years." She added that she would have liked to have had an option for formal learning early on in her entrepreneurial journey; however, she noted that the lack of options available in Canada compared to the USA in the following remark:

> I think in the US there are a lot more things like community colleges where you can take like a 'here, set up your entrepreneurial business and stuff' [course]. But here [Canada] we really don't have anything without having to spend a lot of money and a lot of time. So if I went to the local college here and take these kinds of courses, it's going to take me two to three years to finish them all. It's like I'm going back to university really. So I don't have that time. I need to put these in place now.

Later in the interview, Eve also highlighted the opportunity cost of formal learning experiences, such as the college courses mentioned above. She noted how the time investment for formal learning has the potential to result in a loss of traction in one's business, which presents a challenge.

Collective Findings from Case Studies

After conducting the case-level analysis, cross-case comparisons were performed by examining the results for each context unit among the four case study participants. Although the four cases were very different from one another, commonalities emerged when the cases were triangulated.

Context Unit: Q1. Each interview began with a summary of the participant's results for the quantitative survey. In particular, participants received information about their most activated

contexts and the competencies most frequently developed within these contexts from the survey. Participants were asked to describe further their development of entrepreneurial competencies within the identified contexts.

Overall, the digital activities and competencies mentioned by participants reflected their survey responses. The most notable finding, which was helpful for understanding the digital learning ecologies of participants was the multi-contextual nature of competency development. For instance, all participants described taking some sort of online course that was designed and taught by either a business coach or a life coach. These courses consisted of a bundle of a variety of contexts bundled together. A course bundle may feature one-to-one coaching with a mentor, an online paid-access community, webinars, an online mastermind, and online course content. Some of these courses offered industry-specific training for entrepreneurs while others offered generalized training applicable to anyone with a small business.

Two case study participants, Brittany and Beth, described how their learning was limited by time constraints. Brittany described how she liked a podcast by an industry expert and business coach, but time constraints prevented her from listening to it as frequently as she desired. She stated, "I just haven't had as much time with client work and stuff that I haven't had the ability to sit down too much for that." Similarly, Beth explained why she decided to stop participating in an online mastermind group. She said, "It was in the evening and I'm like, I just can't. I can't. It's too much. And so I stopped."

When describing how she was continuing to activate multiple contexts frequently, Eve also mentioned how the nature of her learning and the contexts she activated changed over time. Eve explained how her learning was sporadic at times, a point that was also mentioned by multiple survey participants in their sidebar comments during the quantitative stage. She said,

"Sometimes when you do online learning, you get to a point and kind of stop and then you do some more later."

Context Unit: Q2. After discussing their previous survey results, the case study participants were asked what types of skills they had worked on previously and what skills they were currently working on to develop as an entrepreneur.

Miranda and Eve emphasized personal or management competencies that they had developed, or were developing, through non-formal online programs (with multiple contexts bundled together). For instance, Miranda discussed how she was currently taking an online program that centred on "building effective sales funnels", which was categorized as developing the ability to create systems (MC2). She also described two other online programs that she had taken in the past. She noted how one past program emphasized goal setting and working through struggles to achieve those goals, which was categorized as developing perseverance (PC3). Another past program had focused on how to package and sell her services, which was categorized as developing strategic planning abilities (MC3).

Eve mentioned that she was primarily focusing this year on developing her financial skills (MC1) through the non-formal course she was taking. She explained how she was learning how to divide her revenue into money for paying taxes, operating costs, and profit. She also noted that she had read a book on this topic as well.

Beth and Brittany described competencies that they had developed (or were developing) as a result of experiential learning. Brittany's response, when asked about the skills that she was currently working on, focused on further developing personal competencies, particularly perseverance (PC3) and confidence (PC4). She talked about how past experiences as a business owner had led her to work on these competencies in order to set better boundaries around the

type of projects she was willing to take on and the types of clients with whom she wanted to work. She explained how this had led to her working on developing her strategic planning abilities (MC3) by "learning to say no to things that just don't make business sense."

Beth's response centred on developing her business relationships (PC2). She remarked that the experience of being a distributor for a multi-level marketing company helped her to develop a sense of self-awareness to overcome stuck points when "people aren't responding the way you want them to." She noted how that led to a journey of learning that improved her "ability to relate to people, connect with people."

Context Unit: Q3. Being that 'change over time' emerged as a significant theme in both the open-ended responses (Q41) from the survey and the sidebar comments made during the administration of the quantitative sections of the survey, case study participants were asked how their learning experiences have evolved over time as an entrepreneur.

As mentioned when describing her individual results, Beth said that the purpose of her learning experiences shifted from business development to personal development over time. Her preferred learning contexts, however, remained the same. For example, Beth confirmed that she is drawn to podcasts (DR4) and informational videos (DR2) regardless of the purpose of learning.

Both Brittany and Miranda commented that their ability to discern the value of a learning resource before purchasing has improved over time. In particular, Miranda described how the volume of available resources can be daunting saying, "there's more stuff that's available online, almost to a fault." She added that she relies, "on word of mouth a lot, so what other people have done or used." Brittany also noted that the priority she places on learning has changed over time. She stated that she now allocates time in her week for learning experiences and puts energy

towards "learning the things that I need to learn". To determine whether a learning resource or activity is a worthwhile investment, Brittany said that she asks herself "what's the opportunity cost if I don't learn this thing?

Eve mentioned that her strategic planning abilities have improved over time as she has learned through experience. She remarked that, instead of learning from experience over time, she wished that more formal learning opportunities (such as community college courses) had been available to her in the early stages of her business.

Context Unit: Q4. In order to elicit explanatory data to diagnose how Canadian entrepreneurs who are mothers are activating digital informal learning experiences for capacity development, participants were asked about their most valuable learning experiences in terms of improving their business. The responses from the participants emphasized three competencies that they highlighted as being most valuable: developing the ability to create systems (MC2), developing one's strategic planning abilities (MC3), and developing confidence (PC4).

For Miranda, it was learning how to strategically develop automated sales funnels that reduced her overwhelmed and ensured that she followed up with prospective customers (MC2 and MC3). For Beth and Brittany, and Eve, their most valuable learning experiences happened through online programs that focused on developing confidence (PC4). As an example, Eve described how hearing from experts in the field that her work was good gave her the confidence to increase her prices. Eve also echoed Miranda's sentiments that learning business planning skills (MC3) and how to properly set up her business (MC2) helped improve her business as well.

Context Unit: Q5. To identify barriers to informal learning for capacity development, participants were asked about the greatest barrier to learning they have experienced as an

entrepreneur. The responses highlighted how limited time, limited energy, and financial constraints impact learning opportunities.

Brittany described how late payments from clients result in having to take on more work to pay the bills, which takes up time and energy, leaving her exhausted and lacking the capacity to do little else. In summary, she stated, "basically not having enough money, time, or energy have been the main barriers."

Miranda's comments reiterated that a main barrier to learning is time. She said, "sitting down and listening to a webinar, or joining a coaching program that I have to commit to, is time away from the other things that I would need to do in my business." Eve echoed this statement when talking about the time cost of taking formal courses saying, "you spend months doing it and then you're losing traction with your business and I think that's hard." She remarked that learning experiences that can be done while she is doing other things (such as listening to a resource) or that she can activate for short periods of time are preferable for her.

Miranda also described an overload of resources as a barrier to learning, particularly in online contexts where she is targeted by advertisements by people offering online courses and other learning opportunities. She said, "A barrier has been where do you start? Who do you pay attention to?"

For Beth, the main barrier was a fear of failure. She responded to the question saying, "Honestly, fear. Fear of failure, fear of looking stupid, fear of trying something and it doesn't work."

Context Unit: Q6. Following their response about barriers to learning, participants were asked what could be done to better support their learning, and ultimately their success, as an

entrepreneur. Each participant reported different things that would better support their learning and success.

Eve and Miranda's responses emphasized external supports that would be helpful for them. Eve talked about how having better formal courses with Canadian content, that were available locally, would be beneficial. She also added that it would be helpful if such courses had content geared to smaller entrepreneurs who were intending to keep their businesses small in size. Miranda highlighted the importance of accountability. She explained that having regular check-ins with a business coach and other entrepreneurs helped her to make progress toward her goals saying, "I felt like there was always a little reminder to pay attention to this in your business, do that in your business. I liked that."

Brittany and Beth's responses were more internalized and focused on what they needed at a personal level that would support their learning and success. Brittany talked about the importance of being able to implement self-care and boundaries within her business to protect her energy. Beth emphasized self-awareness and confidence saying, "It's not the how-to's, it's not the try this, it's not the 'this is what I did in my business', all the little things we try. It's the 'who are you', 'where are you coming from'?" She added that help with changing one's mindset and self-perception is what entrepreneurs need most to succeed.

Context Unit: Q7. Lastly, participants were asked if there was anything else they'd like me to know before the interview concluded. Eve said that she did not have anything else to add and the responses from Beth, Brittany, and Miranda were varied.

Beth reiterated the negative impact that social media and feeling a sense of pressure to succeed in multi-level marketing had on her identity and time, which led to the changes she made between the first and second interview (reducing her time spent on social media and

stepping away from her work as an independent distributor for a multi-level marketing organization). She said, "I was exhausted by the end of my social media time, my work that I had to do, and my learning that I had to do, I was so emotionally exhausted that I was like 'if anyone comes to the door, I'm going to hide behind the couch. I don't want to talk to anybody.' And I hadn't talked to anybody really, I had been completely depleted by this illusion of connecting and searching."

Brittany emphasized that non-formal online courses helped her develop self-awareness and recognize blind spots, but highlighted the importance of implementing the information (experiential learning). She added that changing her mindset "makes it easier to make those changes and also see that things could be different and to be able to imagine things in a different way and actually to give myself permission to want something else."

Miranda talked about having a preference for online learning, not only for the convenience and flexibility it offered her as a parent, but for its affordances as a learning delivery mode. She explained, "Online I feel like I have more control. I can go at my own pace. I can do it when I'm totally focused and ready for it." She also added that while learning online was critical to helping her build her business, especially while she was balancing the demands of parenting younger children, she has come to realize that she prefers online to in-person learning opportunities.

Mixed Methods Analysis

The final stage of the analysis consisted of triangulating the data from the survey stage and the case study stage using the learning ecologies framework. In this section, the learning ecologies framework, as described in the first chapter (theoretical framework) of this thesis,

provides a structure for answering the research questions for the study and eliciting the overarching results.

Understanding Participants' Learning Ecologies

The first research question for this study was: In what ways do the digital learning experiences of participants illustrate the common elements of their collective learning ecologies?

Overall, the participants mostly reported informal learning experiences, as evidenced by the low activation of formal and non-formal learning contexts in the quantitative findings. The application of a learning ecologies framework to the qualitative data provided insight into the experiential and intrinsic dimensions of informal learning among participants as they developed entrepreneurial competencies. The findings also highlighted how participants' learning experiences (and learning ecologies) changed over time.

To guide the presentation of the findings using a learning ecologies framework, Figure 3.4 provides a generic illustration of the interplay of elements within an individual's learning ecology. The area inside the circle represents the individual and the intrinsic dimension of their learning ecology with an arrow extending outwards to show the impact of the intrinsic dimension on the experiential dimension (the greyed out area of the illustration). The experiential dimension includes the microsystem (individual contexts in which competencies are developed) and the mesosystem (the development of competencies across contexts). In the generic example, Competency 1 and 3 are only developed in Context B (within a singular microsystem), whereas Competency 2 is developed in Contexts A, C, and D (providing an example of competency development at the level of the mesosystem). The white space outside of the individual represents the exosystem and illustrates how factors beyond an individual's control may impact

the experiential dimension. Lastly, the elements within the illustration are surrounded by a

border that represents the macrosystem, which is the overarching learning culture.
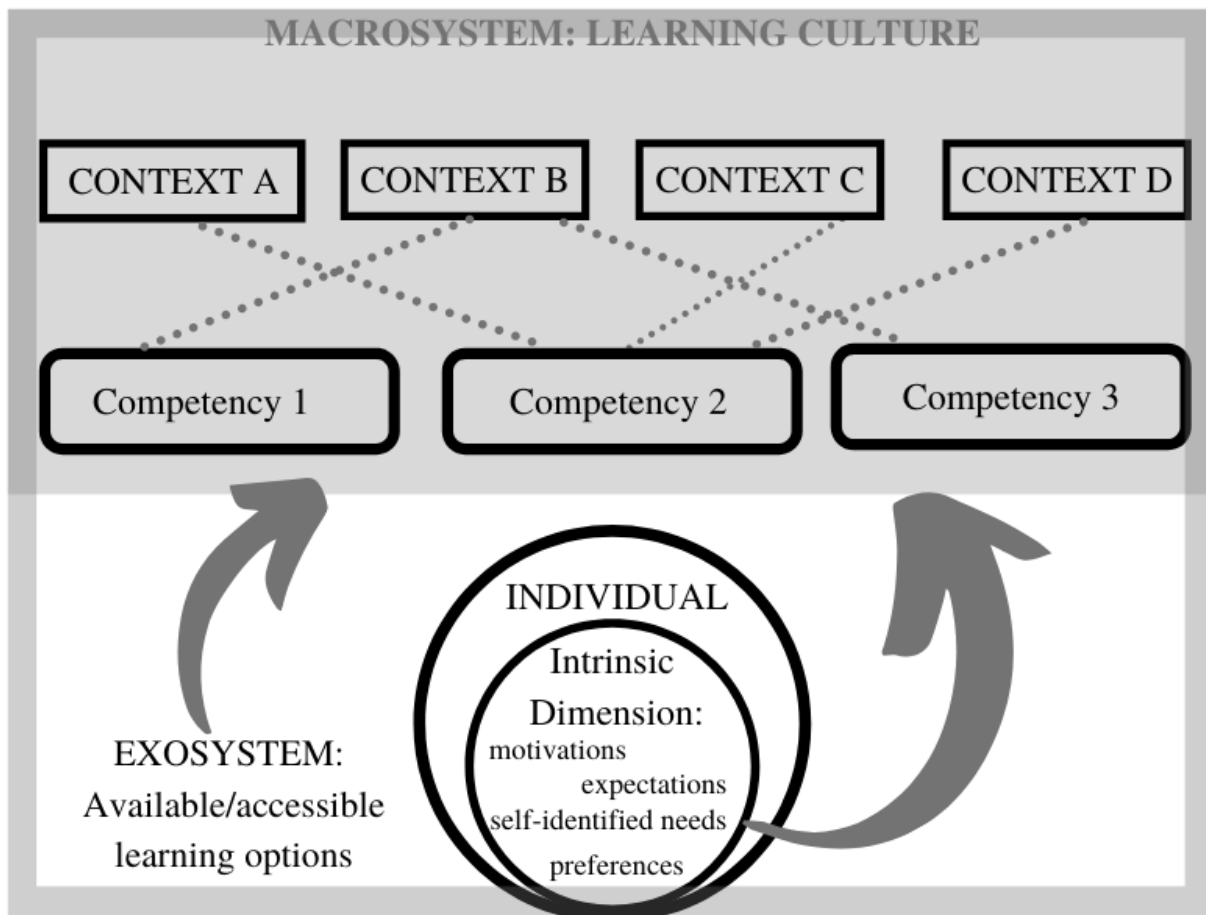
Figure 3.4. Elements of an Individual's Learning Ecology

The experiential dimension of learning includes contexts that consisted of resources,

actions, and relationships. Each individual learning context represents a microsystem within a

participant's learning ecology. The quantitative findings indicated that different competencies

are developed in different contexts. The qualitative data indicated that participants made choices

about which competencies to develop and which contexts to activate to facilitate competency

development based on self-identified learning needs and learning preferences.

The findings also indicate that participants activated multiple contexts to develop competencies, highlighting learning at the level of the mesosystem. The quantitative findings showed the participants' frequently developed a singular competency in multiple contexts and the case study data illustrated the development of mesosystems within participants' learning ecologies. For instance, Miranda, Brittany, and Eve all described non-formal learning programs in which several contexts were bundled together to provide an overarching cross-context learning experience.

The experiential dimension also includes learning processes. For example, Brittany mentioned that the process of implementing new ideas was an important learning experience for her. Similarly, six survey participants said in their open-ended response that learning through practical experience was how they learned as an entrepreneur. Other informal learning processes mentioned by participants in the open-ended response to the survey included self-directed learning and incidental learning. Learning experiences were coded as self-directed when participants described intentionally activating a context to develop a specific competency. Conversely, passive learning experiences were coded as incidental. One participant described incidental learning as occurring when, "somebody posts something that's helpful, I'll read it, and that could still help my business, but I'm not necessary on it [activating the context] for that specific focus". In the case study interview with Miranda, she described self-directed learning by seeking out resources to meet her learning needs and learning incidentally by observing others.

With regard to the intrinsic dimension (participants' conceptions, motivations, and expectations) of the learning ecologies framework, the qualitative data showed that participants' motivations for learning varied and included mention of both intrinsic and extrinsic motivators. In the open-ended responses to the survey, several participants made comments that explained

the motivators that impacted the types of learning experiences they chose to activate. These

motivators included the flexibility afforded by digital learning, having accountability and support

through online relationships attached to the learning experience, and having individual

preferences for certain types of contexts or learning experiences.

The case study data reiterated the findings related to motivators. For example, Miranda

and Eve emphasized that having the opportunity to develop entrepreneurial competencies in

online contexts afforded them the flexibility they needed to care for their children while learning

the skills they needed to grow their businesses. Throughout their respective interviews, Miranda,

Brittany, and Eve made comments that highlighted the importance of accountability and support

through online relationships related to learning experiences. With regard to preferences, Beth

talked about how she tends to activate certain preferred digital contexts, regardless of the

competencies (entrepreneurial or otherwise) that she is seeking to develop.

Lastly, while the quantitative data could only provide a cross-sectional view of a snapshot

in time, the qualitative data revealed that participants' learning ecologies were dynamic and that

their learning experiences changed over time. In the open-ended responses to the survey,

participants remarked that their activation of learning experiences varied from week-to-week and

shifted over time in response to their learning needs. One participant remarked, "there might be

times where I spend a lot of time [learning] and then there might be weeks where I do nothing in

terms of digital learning." Another participant described that as her business grew and became

successful, her learning needs shifted from beginner to advanced and she found it "hard to find

other people to challenge you and enhance your ability to generate new ideas."

The phenomena of change over time was specifically investigated in the case study

interviews and participants were asked how their learning experiences had evolved over time as

an entrepreneur. As demonstrated in the results for Q3 of the interview, the types of

competencies that case study participants sought to develop changed over time in response to

their needs, as did their ability to discern whether a learning opportunity or resource would be of

value to them.

Ultimately, aside from the commonalities of being informal and drawing heavily on the

use of social media platforms, each participant's learning ecology represented a unique

collection of contexts that were being activated to develop entrepreneurial competencies that

were deemed by the participant to be important to her success in business. Although the

qualitative data indicated that much of the informal learning was self-directed, there is also

evidence that participants developed entrepreneurial competencies incidentally through their

online activities and interactions. Importantly, each individual's learning ecology was not static,

but dynamic: context activation varied from week to week and the contexts being activated

changed over time, as did the competencies under development.

Benefits and Hindrances to Digital Informal Learning

The second research question for this study was: What factors benefit or hinder the

potential of digital informal learning within the learning ecologies of participants? The

qualitative data provided some answers to this question.

Some of the benefits and hindrances to informal learning naturally emerged in

participants' responses to the open-ended question at the end of the survey. Participants

mentioned being able to be physically present for their children while learning and developing

supportive online learning relationships as benefits of digital informal learning. Limited time to

activate learning experiences due to the demands of parenting while running their business,

financial constraints for paid resources, and discerning the quality of learning resources emerged

as hindrances. In the case study interviews, participants were specifically asked to identify the greatest barrier to their learning as an entrepreneur (Q5) and their responses echoed the findings from the open-ended survey response.

Considering the benefits and hindrances to digital informal learning from a learning ecologies perspective, it is also important to note the impact of the exosystem (settings that do not involve an individual but impact their development) on the potential for entrepreneurial competency development. For example, the gap in development of human resources competencies, as identified in the quantitative results, may be due to a lack of resources on this topic. Further research is needed to investigate the impact of the exosystem on the digital informal learning experiences of Canadian entrepreneurs who are mothers.

Digital Learning Experiences and Capacity Development

The final research question asked in this study was: How do participants' digital learning experiences impact their capacity development? The data provided indicators about the overall learning culture (or macrosystem) of the research participants, which offers insight into the broader issue of capacity development.

Overall, participants had relatively high capacity development scores. The quantitative data showed out of a possible total score of 90, the average capacity development score was 70, which means that most participants indicated that they agreed that their digital learning experiences had positively impacted their capabilities in multiple areas of their lives.

To gather descriptive and explanatory data about the impact of participants' digital learning experiences on their capacity development, case study participants were asked about their most valuable learning experiences as an entrepreneur (Q4). Beth, Brittany, and Eve identified that developing confidence was critical. Miranda and Eve highlighted the importance

of learning how to develop systems and strategic plans. Similarly, case study participants were

also asked what could be done to better support their learning, and ultimately their success, as an

entrepreneur (Q6). Eve and Miranda identified the need for more external supports and resources

such as Canadian-specific content and relationships focused on accountability. Beth and Brittany

emphasized the importance of learning how to set boundaries and attain a healthy business

mindset.

In summary, these findings signal that the learning culture of the four case study

participants provides opportunities for developing confidence as well as strategies that support

business growth as well as capacity development. The findings also indicate that resources and

supports that foster healthy attitudes and boundaries are important learning experiences for

Canadian entrepreneurs who are mothers that have the potential to positively impact capacity

development.

Legitimation of Findings

In mixed methods research, the process of legitimation adds credibility to the findings.

The nine legitimation types put forth by Onwuegbuzie and Johnson (2006) are listed below with

a description of how they were addressed in the study.

Sample Integration

The purpose of sample integration is to consider the extent to which the sampling design

yields meta-inferences or conclusions. In other words, to what extent can general conclusions

about Canadian entrepreneurs who are mothers be made based on the sample selected for this

study? It is important to recognize that the sample size for this study, in its entirety, is small

(n=47). Further, the sample primarily reflects the geographic regions of the Greater Vancouver

area and the Greater Toronto area. There was cultural diversity within the sample; however,

almost all participants were Anglophone, reporting that English was their first language. The sample was a convenience sample and is missing key perspectives, namely Indigenous perspectives, rural perspectives, immigrant perspectives, Francophone perspectives, and perspectives from the maritime and prairie provinces. This has been acknowledged as a limitation of the study. Thus, while the findings from the sample for this study provide a useful springboard for future studies, generalizations or meta-inferences about Canadian entrepreneurs who are mothers beyond the sample should not be made based on the results of this study.

Inside-Outside

Inside-outside legitimation assesses the extent to which the researcher's understanding of the phenomenon is consistent with the views and perceptions of the participants. In this study, at the end of both the quantitative and qualitative analyses, participants had the opportunity to confirm or challenge the findings. Upon completion of the quantitative analysis, all survey participants received an email with a summary of the survey findings (Appendix C). Participants responded with positive statements to this email and no concerns about the validity of the findings were expressed. Further, upon completion of the qualitative analysis, each of the case study participants received an email with the summary of findings specific to their case. Case study participants were asked whether their experiences and perspectives were captured accurately. The case study participants validated the findings and confirmed that the researcher's interpretation of the data was consistent with their experience.

Weakness Minimization

Weakness minimization assesses the extent to which the weaknesses of one approach used in the study are compensated for by the other approaches used. In this study, the quantitative stage was able to explore whether and to what extent the sample activated various

digital contexts for the development of entrepreneurial competencies. The quantitative stage also

explored the extent of entrepreneurial competency development among the sample and provided

a baseline measure of capacity development. While the quantitative data was able to reveal

patterns associated with context activation for entrepreneurial competency development, the data

did not offer any explanations for the quantitative findings. The qualitative data provided

explanations for choices related to context activation and revealed that the digital learning

experiences of the sample changed over time. While the qualitative data was able to reveal

important aspects of the learning culture of the sample, it lacked the specificity of the

quantitative data and its ability to identify widespread context preferences and competency

development gaps.

Sequential

Sequential legitimation assesses the ordering of the stages of the research and the extent

to which the meta-inferences or conclusions would be impacted if the order of the study were

reversed. In the case of this study, the research began with an exploratory quantitative (survey)

stage and was followed by an explanatory qualitative stage. A review of the literature prior to the

research design revealed a dearth of information regarding the contexts activated by Canadian

entrepreneurs who are mothers and the extent to which competencies were developed within

these contexts. Much of the literature consisted of qualitative studies that captured the general

challenges experienced of female entrepreneurs, but did not address their learning needs. To

effectively probe into the learning experiences of entrepreneurs to answer the research questions

during the qualitative stage, gathering baseline data about the learning experiences of Canadian

entrepreneurs who are mothers was critical. A richer qualitative analysis was possible as a result

of gaining a baseline understanding of the digital learning experiences of Canadian entrepreneurs

who are mothers by performing the quantitative stage first.

Conversion

Conversion legitimation assesses the quality of inferences stemming from the quantization of qualitative data and/or the qualitization of quantitative data. In the first stage of the research, the quantitative data was qualitized through the recording of sidebar comments that participants made during the administration of the survey and through a final open-ended question in which participants were offered the opportunity to share anything else they wanted the researcher to know about their experiences as an entrepreneur. The sidebar comments and open-ended responses provided context to many of the participants responses and facilitated the identification of nuances within the results. For example, many participants mentioned in the sidebar comments that they had not heard of Massive Open Online Courses (MOOCs), which offered a possible explanation for the low levels of activation for this context.

With regard to the qualitative data, during the coding process of the content analysis, code counts were performed within each context unit and across context units to identify patterns within cases and context units. The quantization of the qualitative data through code counts also facilitated the identification of common themes in the responses to the open-ended question for the survey. The transformation of data at both stages of the study impacted the conclusions by offering explanations for the quantitative results during the survey stage and providing a means of identifying the most commonly mentioned variables that emerged naturally in conversation during the case study interviews to connect the qualitative findings to the quantitative results.

Paradigmatic Mixing

Paradigmatic mixing assesses the extent to which the researcher is able to explain the philosophical underpinnings of the study and how they were integrated to answer the research

question. An interpretivist paradigm guided the design of this study and the analysis of the findings. A central tenet of interpretivism is the meaning that participants attach to their experiences and an ethnographic approach, as was employed in this study, is appropriate. With an interpretivist paradigm and ethnographic approach, a smaller sample size was suitable for the quantitative stage of the study (as opposed to an objectivist paradigm in which a larger sample would be required to investigate an overarching reality). Further, the objective of this study was to make discoveries about the learning experiences of the sample (a tenet of interpretivism) rather than to obtain generalizable results (a tenet of objectivism). At both stages of the study, participants had the opportunity to discuss their digital learning experiences from their perspective and to offer their insight into the overall learning culture of Canadian entrepreneurs who are mothers, which facilitated the interpretation of the results as they pertained to discoveries about the learning culture of the sample.

Commensurability

Commensurability legitimation assesses the extent to which the meta-inferences and conclusions are reflective of different viewpoints. In other words, do the conclusions stemming from the study capture both a quantitative and qualitative worldview? In this study, the final step in the analysis stage was to perform a mixed-methods analysis using a learning ecologies framework. Through the application of a learning ecologies framework as an analysis tool, the findings from the survey stage and case study stage were effectively merged together to gain a multidimensional understanding of participants' learning ecologies. For instance, the quantitative findings provided insight into the micro and mesosystems of participants learning ecologies with specific details about the frequency and purpose of context activation and the extent of competency development within and across contexts. The qualitative findings facilitated a

nuanced understanding of the motivations and barriers impacting context activation and competency development as well as an understanding of the broader macrosystem (the learning culture) that encapsulated participants' learning experiences.

Multiple Validities

Multiple validities legitimation assesses the extent to which the researcher can defend the validity of the quantitative component and the qualitative component as individual entities. As described in the methodology chapter, the survey underwent expert validation prior to administration to the sample and a jackknife technique was used on the results to ensure the sample size of n=47 was adequate for eliciting reliable results. The qualitative results were validated by the participants, themselves, to ensure that the researcher's descriptions and interpretations accurately reflected their experiences.

Political

Political legitimation assesses the extent to which the meta-inferences and conclusions are acceptable and useful to the research audience, the Canadian entrepreneurs who are mothers community, and Canadian entrepreneurs who are mothers community stakeholder. The findings from this study have been reviewed by research colleagues to ensure that the results and conclusions are acceptable by scholarly standards. Considering the government initiatives for advancing female entrepreneurship in Canada, this study provides important insight from an educational perspective to equip entrepreneurial organizations to better design digital learning resources that consider the preferred learning contexts of entrepreneurs, the barriers to learning, what entrepreneurs have found to be beneficial, and the well-rounded development of entrepreneurial competencies.

Chapter 4: Discussion and Conclusions

The findings indicated that the demands of motherhood influence the learning culture of Canadian entrepreneurs who are mothers. Time constraints and the need to foster social connections while at home result in an inclination toward the activation of digital learning contexts. Within the learning ecologies of participants, digital learning experiences tended to be primarily informal, which is consistent with the findings from previous studies (Thomas & Moisey, 2006). Overall, the digital learning experiences of the sample appeared to have a positive impact on capacity development and the results provided insight as to how learning resources for Canadian entrepreneurs who are mothers can be improved to further well-rounded development of entrepreneurial competencies. Finally, as a key purpose of this study was to fill a gap in the body of research at the intersection of entrepreneurship, motherhood, and capacity development, the results provide an important springboard for future studies.

The Motherhood Penalty, Capacity Development, and Participants' Learning Culture

Consistent with the literature on the impact of the motherhood penalty on Canadian women (Horne & Breitkreuz, 2016; Fuller & Hirsch, 2019; Moyser, 2017), the sample of Canadian mothers who participated in this study reported that a need for flexibility resulting from the demands of parenthood influenced their decision to pursue entrepreneurship and how they developed entrepreneurial competencies. Additionally, the quantitative findings demonstrated that the learning experiences of this group were primarily informal and the qualitative findings confirmed that digital learning contexts were a critical component of participants' learning ecologies. Absent from the literature was information about the specific contexts that Canadian entrepreneurs who are mothers activated and the extent to which they developed entrepreneurial competencies within these contexts. The findings from this study

provided insight into participants' entrepreneurial competency development within digital

contexts and the impact of their digital learning experiences on capacity development.

The Motherhood Penalty and Participants' Learning Ecologies

Flexible Learning is Important. The literature surrounding the motherhood penalty

aligns with participants' descriptions of their lived experiences in this study. Comments made by

participants in response to the open-ended survey question highlighted that entrepreneurship,

facilitated by the use of digital technology, was a choice that enabled participants to work while

caring for their children. As one participant explained, "I have learned that the power of social

media, especially, has helped my business flourish because for three years [before her children

were school-aged] I couldn't do the face-to-face."

According to the literature, the caregiving demands of parenthood are more likely to

impact mothers, influencing changes to their work practices such as working atypical hours and

working from home in order to mitigate the motherhood penalty (Craig & Powell, 2012; Fuller &

Hirsch, 2019; Killewald & García-Manglano, 2016). For Canadian entrepreneurs who are

mothers, these same demands of parenthood are potential limiting factors to pursuing in-person

learning opportunities. Participants noted that a benefit of digital learning was that it enabled

them to take advantage of learning opportunities without having to leave the house and that face-

to-face opportunities were not as feasible for them. The affordances of digital learning (e.g. the

asynchronous and ubiquitous nature of the digital world) added flexibility and reduced the

barriers to learning. As one participant stated, "I'm online a lot more [than prior to children] to

do training. I'm training with those little guys [gesturing to children in the room with her]".

Another participant added, "Digital learning does make it easier because you don't have to

physically leave your house. So when you've got small children, it's a benefit."

Digital Informal Learning Experiences are Predominant. Although a digital environment has the potential to reduce barriers to formal and non-formal learning, participants mostly activated digital informal learning experiences. These findings were aligned with the work of Thomas and Moisey (2006) who reported that female entrepreneurs perceived the Internet to be a valuable tool for accessing information and social capital through digital informal learning experiences.

Learning Ecologies are Complex. The overall findings from the current study showed that each individual's learning ecology was a complex constellation of microsystems and mesosystems: participants activated contexts and sets of contexts to develop specific competencies. The choice of which contexts to activate appeared to reflect learning preferences (the intrinsic dimension of one's learning ecology); however, the literature and the data suggest that these preferences may also be shaped by the demands of motherhood, as described above.

There is also indication in the findings that choice of learning context is influenced by factors within the exosystem and macrosystem. In her case study interview, Eve described how she would have liked to take a short course on entrepreneurship at a local community college, such as a continuing education course, but that option did not exist. Therefore, decisions made in Eve's exosystem (e.g. the decisions made by local postsecondary institutions about their offerings) also impacted the development of her learning ecology.

With regard to the macrosystem, attempts to mitigate the motherhood penalty appear to be embedded into the broader learning culture of the sample. For instance, the literature points to the loss of social capital (relational assets that inform and support the development of business practices) as a significant negative impact associated with motherhood (Goldin, 2014; Hughes et al., 2012, Jean & Forbes, 2012; Jennings & Brush, 2013; Kawash, 2011; Slaughter, 2015;

Valtchanov et al., 2014). In the findings, participants activated digital contexts to facilitate the development of entrepreneurial competencies through relationships. As an example, relational learning activities such as having conversations on social networking sites or using technology to have one-to-one conversations with other professionals (not mentors) to develop entrepreneurial competencies were activated by the majority of survey respondents. During the case study interviews, Miranda remarked that learning in relationship contexts was a source of support and accountability that helped her achieve her goals. Importantly, the quantitative survey findings showed that developing business relationships was the most activated competency, which implies that social interactions with other entrepreneurs is a critical component of the overall learning culture.

Capacity Development and the Digital Learning Culture of Participants

Capacity development is the ongoing process of self-actualization, which involves strengthening and maintaining an individual's capabilities to support autonomous choice (Heyligen, 1992; Maslow, 1943; Oshana, 1998). In the quantitative portion of the study, 18 capacity development variables were measured to assess capacity development. The sum of an individual's capacity development variable scores comprised their overarching capacity development score. The capacity development scores from the quantitative analysis revealed that, overall, capacity development was high. Due to the small sample of Canadian entrepreneurs who are mothers (n=47) surveyed for this study and the fact that the sample was a convenience sample, not a representative sample, an assertion cannot be made that Canadian entrepreneurs who are mothers have high capacity development in general. It is important to note that the majority of the participants for this study had a partner or spouse, spoke English as their first language, and mostly resided in major metropolitan areas in Canada. These demographic factors

may play a role in the high capacity development scores and further research is recommended to explore the capacity development of the broader population of Canadian entrepreneurs who are mothers within Canada. With that in mind, the findings from this study about the digital learning culture of the sample offer some insight as to how the capacity development of Canadian entrepreneurs who are mothers might be advanced: through digital informal learning experiences that develop both their competencies and their social network.

The findings from the assessment of individual capacity development variables revealed that participants' digital learning experiences had a strong positive impact on the following aspects of their lives: increasing their likelihood of taking advantage of opportunities to educate themselves further as a business owner, helping them develop a strong business network that provides opportunities for business growth and advantage, improving their freedom and support to work during preferred times, helping them develop support and resources to attend local business-related meetings and events, and improving their ability to make independent decisions about what is best for them. Further, social learning experiences in digital spaces were activated by most participants and play an important role in increasing the social capital of Canadian entrepreneurs who are mothers. In other words, the results indicate that participants' digital learning experiences helped strengthen their abilities, social capital, and autonomous decision-making power. The conclusion can be made that, although barriers to capacity development are inherent in the experience of the motherhood penalty, there is evidence that the digital learning culture of the sample lessened these barriers.

Supporting Entrepreneurial Competency Development

Previous research on the digital informal learning experiences of female entrepreneurs suggested that the nature of the informal learning encompassed self-directed learning, relational

learning, incidental learning, and social (or tacit) learning (Thomas & Moisey, 2006). The results from this study support those findings and signal that the entrepreneurial competency development of participants occurred primarily through self-directed learning based on perceived needs, relational learning with others in digital spaces, and incidental learning experiences through trial and error.

The implication of the finding that participants are mostly making assessments about their own learning needs, then learning by trial and error, indicates that participants are not necessarily receiving guidance about the types of competencies they need to work on in order to further the development of their capabilities (to advance capacity development).

The purpose of the FEC framework put forth by Mitchelmore and Rowley (2013), which served as a foundation for identifying core entrepreneurial competencies for the survey, is to exist as a means for female entrepreneurs to self-assess their overall competency development. However, it is doubtful that many, if any, Canadian entrepreneurs who are mothers have found this resource (or something similar) and conducted a self-assessment of the competencies they need to develop. Hence, another key finding was that each of the entrepreneurial competencies listed in the survey were developed to differing extents, both individually and collectively within the sample.

In the literature related to entrepreneurial competency development, Cheraghi and Schøtt (2015) posited that the time-demands of motherhood combined with the demands of managing a business offered a possible explanation as to why they found that women appeared to be less invested than men in entrepreneurial competency development. As described in the discussion on the motherhood penalty and digital learning ecologies, the current study found evidence that caregiving demands impacted the shape of participants' learning ecologies in terms of choices of

learning contexts. Given that a central tenet of a poststructural feminist approach is to avoid female-to-male comparisons, this study did not investigate the entrepreneurial competency of Canadian entrepreneurs who are mothers in comparison to men; however, like the study conducted by Cheraghi and Schøtt (2015) the findings surrounding entrepreneurial competency development highlighted a potential area of concern.

The point of concern is the finding that entrepreneurial competency development within the sample was not well-rounded: some entrepreneurial competencies were heavily developed by the sample while others were rarely developed. For example, the quantitative results showed a heavy emphasis among participants to develop business relationships (PC2), the ability to come up with new ideas and innovations (EC1), and the ability to take advantage of new opportunities (EC2). Conversely, developing financial skills (MC1), the ability to cope with risk (EC3), and the human resource competencies associated with managing and hiring others did not frequently occur among the sample.

Considering that only a few participants within the sample had formal business training (e.g. a business degree) the finding that entrepreneurial competency was not well-rounded was not surprising. A solution to this issue may be to develop accessible (low-cost) initiatives that partner Canadian entrepreneurs who are mothers (particularly those in the early stages of their business) with experienced entrepreneurs who can offer guidance on competency development.

An important caveat to this finding is that some participants remarked in the open-ended responses to the survey and sidebar comments made during the administration of the survey that they were not developing particular competencies because they had previously mastered them and their current focus was on developing other skills. Additionally, the sidebar comments also revealed that some participants chose not to develop certain entrepreneurial competencies based

on the perception that these competencies were not applicable to their situation as solo-entrepreneurs (e.g. human resource competencies related to hiring and training others). Despite the caveats, the overall findings that entrepreneurial competency development appears to be constrained by the impact of the motherhood penalty and lacking in well-roundedness indicate that intervention (e.g. mentorship or external guidance on entrepreneurial competencies that all entrepreneurs need to develop) is needed to improve the access and quality of learning initiatives that target Canadian entrepreneurs who are mothers.

Improving Learning Experiences for Canadian Entrepreneurs Who Are Mothers

Considering the possibility that some entrepreneurial competencies may be overlooked or underdeveloped, along with the barriers that impact learning choices, how can learning experiences for Canadian entrepreneurs who are mothers be improved? Firstly, the results highlighted a need for trustworthy, accessible, and Canadian-focused resources. Secondly, learning experiences need to occur in the preferred contexts of Canadian entrepreneurs who are mothers. Finally, learning initiatives need to be designed in such a way that acknowledges and mitigates the constraints of learning within the motherhood context. The suggestions below offer possible ideas for learning initiatives for Canadian entrepreneurs who are mothers that could be implemented by entrepreneurial organizations, business coaches, leaders of government initiatives to advance female entrepreneurship, and post-secondary institutions.

Trustworthy, Accessible, and Canadian-Focused Resources. Several participants made remarks in the open-ended responses about the quality of learning resources for developing entrepreneurial competencies. The remarks made by these participants suggest that Canadian entrepreneurs who are mothers may benefit from support in discerning the quality of resources and that Canadian-focused resources would be preferred. Miranda and Brittany also brought up

concerns about quality during the case study interviews and Eve reiterated the importance of having Canadian content for Canadian entrepreneurs.

Canadian entrepreneurial organizations that provide support and resources for Canadian entrepreneurs who are mothers may want to consider curating resources for members. For example, such organizations could identify digital informal learning resources and digital non-formal learning programs that meet certain quality criteria. Another possibility would be for post-secondary institutions to develop continuing education courses or alternative credential offerings that facilitate the development of entrepreneurial competencies. Along with being Canadian-focused, of the utmost importance is that these resources have a low cost and time burden to increase accessibility.

Finally, there is a need to develop a better mechanism for reaching Canadian entrepreneurs who are mothers to inform them of the resources that exist. One the one hand, some participants expressed a sense of overwhelm with the volume of resources available and frustration surrounding how to discern the quality or relevancy of the resource. On the other hand, many participants were unaware of low-cost resources such as MOOCs. As one participant said in her open-ended survey response, "I find there are a lot more resources out there than people know about and somehow being more aware of the resources that are available would be a good thing."

Organizations or business coaches that work with female entrepreneurs could offer a valuable service by curating resources (e.g. creating a resource hub) that have been checked for quality. However, these organizations or coaches also need to show up in the digital spaces most frequented by participants (e.g. social media platforms) to market the existence and availability of the curated resources.

Design of Learning Initiatives. Along with considering preferred learning contexts, learning initiatives also need to be designed in such a way that acknowledges the limitations of learning within the motherhood context. For those developing learning initiatives for Canadian entrepreneurs who are mothers, it is important to bear in mind that the choice of learning contexts by Canadian entrepreneurs who are mothers is shaped, in part, by the constraints associated with motherhood. Participants reinforced that they had a scarcity of time, energy, and financial resources to devote to learning.

In the above discussion about quality and accessibility, it was recommended to market resources in digital spaces that are already frequented by Canadian entrepreneurs who are mothers. Similarly, learning initiatives should occur in digital spaces in which Canadian entrepreneurs who are mothers are already active. As mentioned earlier, the results indicate that the choice of learning contexts selected by Canadian entrepreneurs who are mothers is shaped by the constraints of motherhood. Therefore, designing learning initiatives in less preferred contexts may prove unsuccessful. The digital learning programs that case study participants described in their interviews bundled preferred contexts in their design. Learning designs that bundle preferred contexts should be considered rather than expecting Canadian entrepreneurs who are mothers to adopt new (and potentially less preferred) learning platforms. For example, the programs described in the case study interviews combined elements of social media platforms (such as Facebook groups), informational videos, and video conferencing technologies to deliver content to participants.

Social Learning Experiences that Build Social Capital. Lastly, learning experience developed for Canadian entrepreneurs who are mothers should facilitate relationship-building and collaboration opportunities to mitigate the loss of social capital that occurs as a result of the

motherhood penalty. While mentorship opportunities are important to support well-rounded

competency development, peer-to-peer connection also plays an essential role. In the quantitative

findings, the most developed entrepreneurial competency was the development of business

relationships and, looking specifically at the relationship-building contexts, the most activated

relationship experience was using digital technology to connect one-on-one with another

business professional (with neither party in a mentoring role). In her open-ended survey

response, one participant addressed the need for peer-to-peer collaboration saying, "I need

someone at the same place as me, who has seen the industry and knows. And not someone who

is being paid to say, 'we can try that', right? I need someone else to challenge me and there

isn't."

Areas for Future Research

This study provides overarching findings on the learning culture of a sample of Canadian

mothers who are entrepreneurs. Further research is needed that explores in more depth the

patterns and experiences identified in this study. In particular, studies on the following topics

would be beneficial.

National-Level Baseline Data

In the design of this study, it was discovered that there is little data being gathered on

Canadian entrepreneurs who are mothers within Canada. Considering the capacity development

issues associated with the motherhood penalty and the initiatives being developed to support

female entrepreneurs, it is recommended that nation-wide statistics be gathered on micro-

enterprise and solo-enterprises owned by women with children under age 18. Basic demographic

information is needed to discover commonalities and areas of diversity among Canadian mothers

who pursue business ownership. Having such data is critical for informing the development of effective learning initiatives.

Canadian entrepreneurs who are mothers are a hard to survey population. Due to the limited time these women have available, it is critical that any research methods or instruments be low-burden if wide scale data collection is the goal. Further, reaching Canadian entrepreneurs who are mothers can be a challenge. Female entrepreneurship networks may provide a possible gateway for accessing Canadian entrepreneurs who are mothers; however, as realized in this study, such organizations are unable to share member lists or contact information due to privacy laws. Hence, while national-level baseline data is needed on Canadian entrepreneurs who are mothers, it is important to recognize that this type of endeavour would require considerable human resources and funding.

Best Practices for Advancing Well-Rounded Competency Development

Based on the findings that survey participants were focusing on the development of some entrepreneurial competencies more than others, further research is needed to determine best practices for advancing well-rounded entrepreneurial competency development among Canadian entrepreneurs who are mothers. In particular, research is needed to explore whether the underdevelopment of certain entrepreneurial competencies (e.g. human resource competencies) hinders her ability to meet her business goals. Research studies in this area could also seek to determine which contexts are most effective for developing specific entrepreneurial competencies and whether these are in alignment with the general preferences of Canadian entrepreneurs who are mothers.

In addition, exploration is needed to determine how to best educate Canadian entrepreneurs who are mothers on the types of competencies they should develop to increase

their ability to achieve their business goals. Action research that tests the efficacy of mentorship, online resource hubs, or other informational resources in facilitating an understanding of well-rounded competency development among Canadian entrepreneurs who are mothers may prove beneficial.

Digital Learning Ecologies of Other Informal Learners

The findings from this study on the characteristics of learning ecologies among Canadian entrepreneurs who are mothers could be extended to explorations of other populations that consist of predominantly informal learners. The learning ecologies framework provides a structure for investigating complex learning scenarios and is a useful tool for deconstructing multidimensional learning experiences.

As an example, the global health crisis resulting from the COVID-19 pandemic (which unfolded during the writing of this thesis) offers an opportunity to explore how different populations are informally learning about the virus and protection measures. Due to lockdown measures in many parts of the world (at the time of writing this thesis), many people are relying on digital technology to connect with information. Understanding the digital informal learning experiences of different groups related to learning about COVID-19 may improve the efficacy of public health initiatives.

Contribution of the Research

This research study contributed new information to the intersection of education, female entrepreneurship, and capacity development. The study found that aspects of the motherhood experience, particularly as it relates to the motherhood penalty, impacted and shaped participants' learning ecologies. Digital informal learning experiences emerged as a preferred way to engage with information and others to develop entrepreneurial competencies while

managing a business and a family. The results suggest that opportunities to develop social capital through relational learning may increase the potential for advancing capacity development.

Additionally, a novel survey instrument was developed for this study. The survey instrument can be used by other researchers as a tool for deconstructing and quantifying elements of a respondent's learning ecology, which can be applied to populations beyond female entrepreneurs. For female entrepreneurs, the condensing of Mitchelmore and Rowley's (2013) FEC Framework offers a mechanism for assessing well-rounded competency development. The capacity development variables based on Robeyns' (2003) capabilities also provide a post-structural feminist approach for measuring progress toward self-actualization.

As mentioned in Chapter One (Theoretical Framework), the concept of learning ecologies is emergent. In their literature review on the topic of learning ecologies, Sangrà et al. (2019) put forth a need for increased visibility of a learning ecologies framework for "characterizing innovative ways of learning" (p. 1619). This study operationalizes the term learning ecologies and provides a structure for assessing and analyzing an individual's learning ecology to diagnose commonalities within a group of learners as well as collective areas of deficit.

Lastly, the research provides a springboard for further discussion as to how digital contexts are contributing to capacity development. As demonstrated in this study, an individual's digital informal learning experiences hold the potential to have a positive impact on their capacity development. It has been understood for decades that there is a link between education and capacity development (Bolger, 2000; Coombs & Ahmed, 1974; Faure et al., 1972). This study illustrates that the digital world affords new ways of providing learning opportunities that are promising for advancing the capacity development of certain groups.

Limitations of the Research

Inherent in the design of the study and highlighted throughout the thesis report, there are limitations to this research study. The foremost limitation to this study relates to the sample. A convenience, snowball sampling method was used to recruit participants for the study. This method was used due to the challenges in establishing a population frame and accessing Canadian entrepreneurs who are mothers through gateway organizations. Therefore, the sample cannot be claimed to be representative of the broader community of Canadian entrepreneurs who are mothers. The results are indicative of the experiences of the sample only and should not be generalized to make assertions about community members beyond the sample.

Further, the purpose of this study was to focus on digital learning contexts. The data revealed that many participants engaged in digital informal learning experiences, with some participants stating that they preferred online learning to in-person alternatives. At the same time a couple of participants indicated through verbal comments that they preferred in-person learning. It is important to note that this study did not investigate the nature, or impact, of in-person learning contexts within an individual's learning ecology. While the study demonstrated that digital learning experiences played a significant role in the development of entrepreneurial competencies among the sample, it cannot be implied or inferred that these learning experiences are more or less valuable than participants' in-person learning experiences.

Lastly, while the list of digital contexts provided to participants in the survey instrument was robust, it was not exhaustive. For example, when asked about whether they accessed e-books in the survey, multiple participants noted that they did not read e-books, but they did listen to audiobooks. A recommendation to add audiobooks to future iterations of the survey was noted in the results section. It is possible that there are other digital contexts that are regularly accessed

by Canadian entrepreneurs who are mothers that were accidentally overlooked during the

construction of the survey.

Summary

By exploring the intersection of education, female entrepreneurship, and capacity development from an educational perspective, specifically through the application of a learning ecologies framework, it was discovered that participants activate different learning contexts to varying extents based on preference and the type of entrepreneurial competency being developed. Each participants' learning ecology consisted of constellations of microsystems and mesosystems to develop entrepreneurial competencies based on self-identified needs. Along with self-directed informal learning experiences, learning ecologies also included incidental learning experiences (passive engagement with information and learning through trial and error) and relational learning experiences (learning through interpersonal connections with others facilitated by digital technology). Relational learning experiences in digital contexts were found to be important for gaining social capital, which is a critical component of capacity development. Some participants activated formal and non-formal learning experiences in digital contexts; however, participants predominantly engaged in digital informal learning experiences.

This study serves as a springboard for future research to better understand the relationship between informal learning and capacity development and how to facilitate well-rounded entrepreneurial competency development among Canadian entrepreneurs who are mothers. The applications of a learning ecologies framework in this study offers a model for other research that investigates complex learning phenomena or different levels of learning. Ultimately, it was through the use of a learning ecologies framework that the multidimensionality of the learning experiences of Canadian entrepreneurs who are mothers could be thoroughly explored.

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Appendix A: Letter of Information and Consent

Digital Learning Experiences: Online survey for female entrepreneurs

RESEARCH TEAM

Principal Investigator: Nicole Johnson, PhD Candidate (Open University of Catalonia)

Nicole Johnson is a Canadian researcher who resides in Canada while completing her PhD studies online through the Open University of Catalonia located in Barcelona, Spain.

PhD Supervisors: Dr. Albert Sangrà Morer (Open University of Catalonia) and Dr. Mercedes González-Sanmamed (Universidade da Coruña).

Supporting Institution: Open University of Catalonia

WHO IS ELIGIBLE TO PARTICIPATE?

We are looking for female entrepreneurs who are pursuing entrepreneurship while parenting children under age 18.

PURPOSE OF RESEARCH

You are invited to participate in a research study <u>exploring the digital learning experiences of female entrepreneurs</u> who are pursuing entrepreneurship while parenting children under 18. The purpose of this study, which has been approved by the Open University of Catalonia, is to better understand the digital learning experiences of Canadian female entrepreneurs in order to offer suggestions for improving digital learning resources designed for this group. This study is significant given the Canadian government's commitment to female empowerment.

Your participation in this study will involve you participating in one 30-45 minute interview about your digital learning experiences. The interview will be conducted using Zoom.

At the end of the interview, you will be asked whether or not you provide your permission to be contacted by the Principal Investigator, Nicole Johnson, to participate in a 30-45 minute follow-up interview, also over Zoom, to learn more about your personal experiences pursuing entrepreneurship while parenting a child/children under 18 years of age.

WHAT WILL I BE ASKED TO DO?

The following outlines what will happen during the study:
1. You will be asked to select an interview time.

2. During the interview, you will be asked to answer questions relating to your digital learning experiences as an entrepreneur.

3. At the end of the interview, you will be asked if you provide your consent to be contacted by the Principal Investigator, Nicole Johnson, for a 30-45 minute Zoom follow-up interview (please note that not everyone who volunteers for an interview will be selected).

4. If you provide your consent to be contacted and are selected for follow-up interview, you will be contacted by Nicole Johnson, a second interview time will be scheduled, and you will have a 30-45 minute Zoom video meeting with Nicole Johnson where you will be asked further questions about your digital learning experiences as an entrepreneur.

HOW WILL THE INFORMATION GATHERED FROM THE STUDY BE KEPT CONFIDENTIAL?

All information that is shared with the research team will be kept strictly confidential.

The interview will be recorded using Zoom software and your responses will also be recorded on a paper form during the interview.

The audio recording of the interview will be transcribed within 48 hours of the interview, after which the recording will be deleted. You will be given a pseudonym and any information that may identify you will be removed from the transcription. The transcriptions will then be stored and analyzed using Dedoose software. The transcripts will not be used for any research beyond this study. The transcripts will be destroyed upon completion of this research study and no later than December 31, 2020.

Your interview responses that were recorded on the paper forms will be inputted into SPSS software for quantitative data analysis. Following the completion of the data analysis, all forms will be shredded. No identifying information will be recorded on the forms. No identifying information will be inputted into SPSS software for the data analysis and the data will be store in an encrypted SPSS file.

All data undergoing analysis and the results of the analysis will be de-identified. This means that no information that discloses your identity will be shared with anyone other than members of the research team, unless required by law. Such circumstances include reporting suspected child abuse and to provide research documents if they are ordered to be produced by a court of law.

Any identifying information for the purpose of scheduling the interview and contacting consenting participants for a follow-up interview (you will only be contacted if you explicitly consent to be contacted for the purpose of a follow-up interview), will be stored in a password-protected Excel file on a password protected computer that is only used by the Principal Investigator. Following the completion of the data analysis of the follow-up interviews, the Excel file with contact information will be deleted.

If you are selected for a follow-up interview, the interview will be conducted and recorded using Zoom software. Again, the recording will be transcribed within 48 hours of the interview, after which the recording will be deleted. You will be given a pseudonym and information that may identify you will be removed from the transcription. The transcriptions will then be stored and analyzed using Dedoose software. The transcripts will not be used for any research beyond this study. The transcripts will be destroyed upon completion of this research study and no later than December 31, 2020.

HOW WILL STUDY RESULTS BE SHARED?

The research team intends to publish and publicly share the findings of this study in a variety of ways including, but not limited to, research reports submitted to academic journals, white papers provided to professional organizations that support female entrepreneurs, conference presentations, and blog posts. Your identity will not be disclosed in any reports, presentations, or publications. You may also request a summary of the findings by contacting Nicole Johnson at nchristen@uoc.edu.

WILL I BE COMPENSATED FOR MY INVOLVEMENT IN THE STUDY?

No, compensation will not be provided for this study and your participation is completely voluntary. All participants will be given access to a complimentary business coaching webinar following the data analysis. The general findings from the research will be shared during the webinar.

ARE THERE POTENTIAL RISKS I SHOULD BE AWARE OF?

You will be asked questions about your digital learning experiences. You will also be asked about the impact of the experiences on different aspects of your life and wellbeing. While the research team does not anticipate any risks, there is a chance that you may feel apprehensive about responding to some questions based on your personal life experiences or current situation. You do not need to respond to any question that makes you feel uncomfortable and you do not need to offer any explanation for choosing not to respond.

WHAT ARE THE BENEFITS OF PARTICIPATING?

You will not benefit directly from participating in the study. The findings of this study will be used to offer evidence-based suggestions for improving policies, programs, and digital educational resources for female entrepreneurs to better support the empowerment and well-being of female entrepreneurs in Canada.

VOLUNTARY PARTICIPATION AND WITHDRAWAL

Your participation in this study is voluntary and involves no foreseeable risk to you as person. You may refuse to participate or answer any questions without penalty or explanation. You are

free to withdraw your consent in the study at any time; however, your survey data cannot be withdrawn once you have completed the interview. If you provide your consent to be contacted for a follow-up interview and complete that interview, your consent cannot be withdrawn once the data analysis is complete. Again, protocol will be followed to de-identify you and maintain confidentiality. Contact the Principal Investigator, Nicole Johnson, by phone at 604-825-0582 or by email at nchristen@uoc.edu if you wish to withdraw from this study.

Appendix B: Survey Instrument

This version of the survey will be used to conduct interviews via zoom, phone, or face-to-face

Digital Learning Experiences Survey

You are invited to participate in a research study that **explores the digital learning experiences of female entrepreneurs in Canada**. Your participation in this research project is completely voluntary and you are free to decline this opportunity. Your responses will remain confidential. Data from this research will be kept secure and only the collective results of all the surveys will be reported. This is a structured interview where I will ask a question and you will be asked to select a response that is the best fit to describe your experience. You are free to ask questions and for clarification at any time. The interview will take approximately 30-45 minutes to complete. I greatly appreciate your participation.

- I emailed you the full Letter of Information and Consent when we arranged this interview time, have you had the opportunity to read it?
- Do you have any questions about the letter of consent or the research study before we begin?
- I confirm that you have my contact information to reach me should any questions or concerns arise following this interview, is that correct?
- I confirm that I will be using Zoom software to audio record this interview and that I am also recording your responses on paper interview form, on which there is an ID number for my reference but your name is not listed anywhere on this form.

ACCEPTANCE OF THE CONDITIONS OF THE RESEARCH PROCESS AND CONSENT

a) Has the research team given you the opportunity to ask questions and have any questions have been answered to your satisfaction?
     Yes   No

b) Do you understand that you are free to request further clarification or ask questions, now and in the future, about this study by contacting me anytime?
     Yes   No

c) Do you understand that the purpose of this study is to investigate the digital learning experiences of female entrepreneurs who are pursuing entrepreneurship while parenting children under age 18?
     Yes   No

d) Do you understand that this interview will be about 30-45 minutes in length?

Yes   No

e) Do you understand that you have the option to consent to be contacted for a 30 minute follow-up interview in addition to today's interview?
Yes   No

f) Do you understand that you are under no obligation to participate in the research study and have the freedom to withdraw from this study without penalty and without needing to provide explanation?
Yes   No

g) Do you understand that you can choose not to answer any questions that you are uncomfortable answering without penalty and without needing to provide explanation?
Yes   No

h) Do you understand that your participation in this study will not be disclosed to anyone other than members of the research team?
Yes   No

i) Can I confirm that you have been informed about the ways in which your confidentiality will be protected, and the protocol for doing so, except where release of information is required by law (such as in the case where child abuse is disclosed)?
Yes   No

j) Do I have your consent to begin this interview?
Yes   No

Thank you. I will start the recording now.

START RECORDING

Section 1: Screening Questions

Q1

In which city and province do you reside?

_____

Q2

How many children (under age 18) live in your home either full-time or part-time?

0   1   2   3   4 or more

Q3

What are the ages of your children?

Q4

Do you own <u>at least</u> 50% of your business?

Yes   No

Q5

Which of the following best describes your business?

0-4 employees   5-19 employees   20-99 employees   100+ employees

*Ask about type of business if you do not already know this answer.

Section 2: Digital Learning Activities

PART 1: FREQUENCY OF ACTIVATION OF CONTEXTS

Q6: Thinking about the past year, please indicate approximately how much time you spend <u>during an average **week**</u> on each of the following digital activities:

<u>NOTE FOR INTERVIEWER</u>: Post response options into the Zoom comments for respondent

0 = not at all
1 = 1 hour or less
2 = more than one hour, but not more than 2 hours
3 = more than 2 hours, but not more than 3 hours
4 = more than 3 hours, but not more than 4 hours
5 = 4 or more hours

<u>NOTE FOR INTERVIEWER</u>: If the participant indicates that <u>they do NOT activate a context</u> in a typical week <u>to learn business skills</u>, then <u>ask if they have ever done this activity to learn business skills over the past year</u>. If they never activate the context, skip the question for PART 2 and record '1' for all competencies in contexts that have not been activated over the past year (for the SPSS analysis). This will save time and eliminate redundancy for the participant.

	How much time do you spend in a typical week:	**To learn business skills**	**For other purposes**
DA1	Conversations on social networking sites (e.g. Facebook, LinkedIn, Reddit, group forums)	0 1 2 3 4 5	0 1 2 3 4 5
DA2	Conversations using messaging platforms (e.g. texting, Facebook Messenger, WhatsApp)	0 1 2 3 4 5	0 1 2 3 4 5
DA3	Video conversations with others (e.g. Skype, Zoom, FaceTime, etc.)	0 1 2 3 4 5	0 1 2 3 4 5
DA4	Participating in interactive, real-time webinars	0 1 2 3 4 5	0 1 2 3 4 5
DA5	Completing tasks for an online degree program offered by a college or university	0 1 2 3 4 5	0 1 2 3 4 5
DA6	Completing tasks for an online course that is NOT part of a degree or a diploma program	0 1 2 3 4 5	0 1 2 3 4 5

PART 2: FREQUENCY OF ACTIVATION FOR COMPETENCY DEVELOPMENT

Of the activities that you indicated that you do to learn business skills, you will be asked to rate how frequently you participated in those digital learning activities **during the last year** to develop specific competencies.

NOTE FOR INTERVIEWER: Post response options into the Zoom comments for respondent

1 = not at all, 2 = rarely, 3 = neutral, 4 = moderately, 5 = a great deal

Q7 (DA1) Conversations on social networking sites (e.g. Facebook, LinkedIn, Reddit, group forums)

To develop your communication skills	PC1	1 2 3 4 5
To develop business relationships	PC2	1 2 3 4 5
To develop your perseverance	PC3	1 2 3 4 5
To develop your confidence	PC4	1 2 3 4 5
To develop your financial skills	MC1	1 2 3 4 5
To develop your ability to create systems	MC2	1 2 3 4 5
To develop your strategic planning abilities	MC3	1 2 3 4 5
To develop your ability to come up with new ideas and innovations	EC1	1 2 3 4 5
To develop your ability to take advantage of new opportunities	EC2	1 2 3 4 5
To develop your ability to cope with risk	EC3	1 2 3 4 5
To develop your ability to train employees	HRC1	1 2 3 4 5
To develop your ability to manage others who work for you	HRC2	1 2 3 4 5
To develop your hiring skills	HRC3	1 2 3 4 5
To develop your leadership skills	HRC4	1 2 3 4 5

Q8 (DA2) Conversations using messaging platforms (e.g. texting, Facebook Messenger, WhatsApp)

To develop your communication skills	PC1	1 2 3 4 5
To develop business relationships	PC2	1 2 3 4 5
To develop your perseverance	PC3	1 2 3 4 5
To develop your confidence	PC4	1 2 3 4 5
To develop your financial skills	MC1	1 2 3 4 5
To develop your ability to create systems	MC2	1 2 3 4 5
To develop your strategic planning abilities	MC3	1 2 3 4 5
To develop your ability to come up with new ideas and innovations	EC1	1 2 3 4 5
To develop your ability to take advantage of new opportunities	EC2	1 2 3 4 5
To develop your ability to cope with risk	EC3	1 2 3 4 5
To develop your ability to train employees	HRC1	1 2 3 4 5
To develop your ability to manage others who work for you	HRC2	1 2 3 4 5
To develop your hiring skills	HRC3	1 2 3 4 5
To develop your leadership skills	HRC4	1 2 3 4 5

Q9 (DA3) Video conversations with others (e.g. Skype, Zoom, FaceTime, etc.)

To develop your communication skills	PC1	1 2 3 4 5
To develop business relationships	PC2	1 2 3 4 5
To develop your perseverance	PC3	1 2 3 4 5
To develop your confidence	PC4	1 2 3 4 5
To develop your financial skills	MC1	1 2 3 4 5
To develop your ability to create systems	MC2	1 2 3 4 5
To develop your strategic planning abilities	MC3	1 2 3 4 5
To develop your ability to come up with new ideas and innovations	EC1	1 2 3 4 5
To develop your ability to take advantage of new opportunities	EC2	1 2 3 4 5

To develop your ability to cope with risk	EC3	1 2 3 4 5
To develop your ability to train employees	HRC1	1 2 3 4 5
To develop your ability to manage others who work for you	HRC2	1 2 3 4 5
To develop your hiring skills	HRC3	1 2 3 4 5
To develop your leadership skills	HRC4	1 2 3 4 5

Q10 (DA4) Participating in interactive, real-time webinars

To develop your communication skills	PC1	1 2 3 4 5
To develop business relationships	PC2	1 2 3 4 5
To develop your perseverance	PC3	1 2 3 4 5
To develop your confidence	PC4	1 2 3 4 5
To develop your financial skills	MC1	1 2 3 4 5
To develop your ability to create systems	MC2	1 2 3 4 5
To develop your strategic planning abilities	MC3	1 2 3 4 5
To develop your ability to come up with new ideas and innovations	EC1	1 2 3 4 5
To develop your ability to take advantage of new opportunities	EC2	1 2 3 4 5
To develop your ability to cope with risk	EC3	1 2 3 4 5
To develop your ability to train employees	HRC1	1 2 3 4 5
To develop your ability to manage others who work for you	HRC2	1 2 3 4 5
To develop your hiring skills	HRC3	1 2 3 4 5
To develop your leadership skills	HRC4	1 2 3 4 5

Q11 (DA5) Completing tasks for an online degree program offered by a college or university

To develop your communication skills	PC1	1 2 3 4 5
To develop business relationships	PC2	1 2 3 4 5

To develop your perseverance	PC3	1 2 3 4 5
To develop your confidence	PC4	1 2 3 4 5
To develop your financial skills	MC1	1 2 3 4 5
To develop your ability to create systems	MC2	1 2 3 4 5
To develop your strategic planning abilities	MC3	1 2 3 4 5
To develop your ability to come up with new ideas and innovations	EC1	1 2 3 4 5
To develop your ability to take advantage of new opportunities	EC2	1 2 3 4 5
To develop your ability to cope with risk	EC3	1 2 3 4 5
To develop your ability to train employees	HRC1	1 2 3 4 5
To develop your ability to manage others who work for you	HRC2	1 2 3 4 5
To develop your hiring skills	HRC3	1 2 3 4 5
To develop your leadership skills	HRC4	1 2 3 4 5

Q12 (DA6) Completing tasks for an online course that is NOT part of a degree or a diploma program

To develop your communication skills	PC1	1 2 3 4 5
To develop business relationships	PC2	1 2 3 4 5
To develop your perseverance	PC3	1 2 3 4 5
To develop your confidence	PC4	1 2 3 4 5
To develop your financial skills	MC1	1 2 3 4 5
To develop your ability to create systems	MC2	1 2 3 4 5
To develop your strategic planning abilities	MC3	1 2 3 4 5
To develop your ability to come up with new ideas and innovations	EC1	1 2 3 4 5
To develop your ability to take advantage of new opportunities	EC2	1 2 3 4 5
To develop your ability to cope with risk	EC3	1 2 3 4 5

To develop your ability to train employees	HRC1	1 2 3 4 5
To develop your ability to manage others who work for you	HRC2	1 2 3 4 5
To develop your hiring skills	HRC3	1 2 3 4 5
To develop your leadership skills	HRC4	1 2 3 4 5

Section 3: Digital Learning Resources

PART 1: FREQUENCY OF ACTIVATION OF CONTEXTS

Q13: Thinking about the past year, please indicate approximately how much time you spend <u>during an average **week**</u> accessing the following digital resources:

0 = not at all
1 = 1 hour or less
2 = more than one hour, but not more than 2 hours
3 = more than 2 hours, but not more than 3 hours
4 = more than 3 hours, but not more than 4 hours
5 = 4 or more hours

<u>*NOTE FOR INTERVIEWER*</u>*: If the participant indicates that <u>they do NOT activate a context</u> in a typical week <u>to learn business skills</u>, then <u>ask if they have ever accessed this resource to learn business skills over the past year</u>. If they never activate the context, skip the question for PART 2 and record '1' for all competencies in contexts that have not been activated over the past year (for the SPSS analysis). This will save time and eliminate redundancy for the participant.*

	How much time do you spend in a typical week accessing:	To learn business skills	For other purposes
DR1	Content posted by others on a social network (e.g. social media platform, group forum)	0 1 2 3 4 5	0 1 2 3 4 5
DR2	Informational videos (e.g. YouTube, TED talks, Lynda.com, Khan Academy, previously recorded webinars)	0 1 2 3 4 5	0 1 2 3 4 5
DR3	Blog posts or online magazine articles	0 1 2 3 4 5	0 1 2 3 4 5
DR4	Podcasts	0 1 2 3 4 5	0 1 2 3 4 5
DR5	Email newsletters from industry experts	0 1 2 3 4 5	0 1 2 3 4 5
DR6	E-books	0 1 2 3 4 5	0 1 2 3 4 5
DR7	Course materials for an online degree program offered by a university or college	0 1 2 3 4 5	0 1 2 3 4 5
DR8	Massive Open Online Courses (MOOC)	0 1 2 3 4 5	0 1 2 3 4 5
DR9	Course materials for an online course that is NOT affiliated with a university	0 1 2 3 4 5	0 1 2 3 4 5

PART 2: FREQUENCY OF ACTIVATION FOR COMPETENCY DEVELOPMENT

Of the resources that you indicated that you access to learn business skills, you will be asked to rate how frequently you accessed those digital learning resources **during the last year** to develop specific competencies.

1 = not at all, 2 = rarely, 3 = neutral, 4 = moderately, 5 = a great deal

Q14 (DR1) Content posted by others on a social network (e.g. social media platform, group forum)

To develop your communication skills	PC1	1 2 3 4 5
To develop business relationships	PC2	1 2 3 4 5
To develop your perseverance	PC3	1 2 3 4 5
To develop your confidence	PC4	1 2 3 4 5
To develop your financial skills	MC1	1 2 3 4 5
To develop your ability to create systems	MC2	1 2 3 4 5
To develop your strategic planning abilities	MC3	1 2 3 4 5
To develop your ability to come up with new ideas and innovations	EC1	1 2 3 4 5
To develop your ability to take advantage of new opportunities	EC2	1 2 3 4 5
To develop your ability to cope with risk	EC3	1 2 3 4 5
To develop your ability to train employees	HRC1	1 2 3 4 5
To develop your ability to manage others who work for you	HRC2	1 2 3 4 5
To develop your hiring skills	HRC3	1 2 3 4 5
To develop your leadership skills	HRC4	1 2 3 4 5

Q15 (DR2) Informational videos (e.g. YouTube, TED talks, Lynda.com, Khan Academy, previously recorded webinars)

To develop your communication skills	PC1	1 2 3 4 5
To develop business relationships	PC2	1 2 3 4 5
To develop your perseverance	PC3	1 2 3 4 5

To develop your confidence	PC4	1 2 3 4 5
To develop your financial skills	MC1	1 2 3 4 5
To develop your ability to create systems	MC2	1 2 3 4 5
To develop your strategic planning abilities	MC3	1 2 3 4 5
To develop your ability to come up with new ideas and innovations	EC1	1 2 3 4 5
To develop your ability to take advantage of new opportunities	EC2	1 2 3 4 5
To develop your ability to cope with risk	EC3	1 2 3 4 5
To develop your ability to train employees	HRC1	1 2 3 4 5
To develop your ability to manage others who work for you	HRC2	1 2 3 4 5
To develop your hiring skills	HRC3	1 2 3 4 5
To develop your leadership skills	HRC4	1 2 3 4 5

Q16 (DR3) Blog posts or online magazine articles

To develop your communication skills	PC1	1 2 3 4 5
To develop business relationships	PC2	1 2 3 4 5
To develop your perseverance	PC3	1 2 3 4 5
To develop your confidence	PC4	1 2 3 4 5
To develop your financial skills	MC1	1 2 3 4 5
To develop your ability to create systems	MC2	1 2 3 4 5
To develop your strategic planning abilities	MC3	1 2 3 4 5
To develop your ability to come up with new ideas and innovations	EC1	1 2 3 4 5
To develop your ability to take advantage of new opportunities	EC2	1 2 3 4 5
To develop your ability to cope with risk	EC3	1 2 3 4 5
To develop your ability to train employees	HRC1	1 2 3 4 5
To develop your ability to manage others who work for you	HRC2	1 2 3 4 5

To develop your hiring skills	HRC3	1 2 3 4 5
To develop your leadership skills	HRC4	1 2 3 4 5

Q17 (DR4) Podcasts

To develop your communication skills	PC1	1 2 3 4 5
To develop business relationships	PC2	1 2 3 4 5
To develop your perseverance	PC3	1 2 3 4 5
To develop your confidence	PC4	1 2 3 4 5
To develop your financial skills	MC1	1 2 3 4 5
To develop your ability to create systems	MC2	1 2 3 4 5
To develop your strategic planning abilities	MC3	1 2 3 4 5
To develop your ability to come up with new ideas and innovations	EC1	1 2 3 4 5
To develop your ability to take advantage of new opportunities	EC2	1 2 3 4 5
To develop your ability to cope with risk	EC3	1 2 3 4 5
To develop your ability to train employees	HRC1	1 2 3 4 5
To develop your ability to manage others who work for you	HRC2	1 2 3 4 5
To develop your hiring skills	HRC3	1 2 3 4 5
To develop your leadership skills	HRC4	1 2 3 4 5

Q18 (DR5) Email newsletters from industry experts

To develop your communication skills	PC1	1 2 3 4 5
To develop business relationships	PC2	1 2 3 4 5
To develop your perseverance	PC3	1 2 3 4 5
To develop your confidence	PC4	1 2 3 4 5
To develop your financial skills	MC1	1 2 3 4 5
To develop your ability to create systems	MC2	1 2 3 4 5

To develop your strategic planning abilities	MC3	1 2 3 4 5
To develop your ability to come up with new ideas and innovations	EC1	1 2 3 4 5
To develop your ability to take advantage of new opportunities	EC2	1 2 3 4 5
To develop your ability to cope with risk	EC3	1 2 3 4 5
To develop your ability to train employees	HRC1	1 2 3 4 5
To develop your ability to manage others who work for you	HRC2	1 2 3 4 5
To develop your hiring skills	HRC3	1 2 3 4 5
To develop your leadership skills	HRC4	1 2 3 4 5

Q19 (DR6) E-books

To develop your communication skills	PC1	1 2 3 4 5
To develop business relationships	PC2	1 2 3 4 5
To develop your perseverance	PC3	1 2 3 4 5
To develop your confidence	PC4	1 2 3 4 5
To develop your financial skills	MC1	1 2 3 4 5
To develop your ability to create systems	MC2	1 2 3 4 5
To develop your strategic planning abilities	MC3	1 2 3 4 5
To develop your ability to come up with new ideas and innovations	EC1	1 2 3 4 5
To develop your ability to take advantage of new opportunities	EC2	1 2 3 4 5
To develop your ability to cope with risk	EC3	1 2 3 4 5
To develop your ability to train employees	HRC1	1 2 3 4 5
To develop your ability to manage others who work for you	HRC2	1 2 3 4 5
To develop your hiring skills	HRC3	1 2 3 4 5
To develop your leadership skills	HRC4	1 2 3 4 5

Q20 (DR7) Course materials for an online degree program offered by a university or college

To develop your communication skills	PC1	1 2 3 4 5
To develop business relationships	PC2	1 2 3 4 5
To develop your perseverance	PC3	1 2 3 4 5
To develop your confidence	PC4	1 2 3 4 5
To develop your financial skills	MC1	1 2 3 4 5
To develop your ability to create systems	MC2	1 2 3 4 5
To develop your strategic planning abilities	MC3	1 2 3 4 5
To develop your ability to come up with new ideas and innovations	EC1	1 2 3 4 5
To develop your ability to take advantage of new opportunities	EC2	1 2 3 4 5
To develop your ability to cope with risk	EC3	1 2 3 4 5
To develop your ability to train employees	HRC1	1 2 3 4 5
To develop your ability to manage others who work for you	HRC2	1 2 3 4 5
To develop your hiring skills	HRC3	1 2 3 4 5
To develop your leadership skills	HRC4	1 2 3 4 5

Q21 (DR8) Massive Open Online Courses (MOOC)

To develop your communication skills	PC1	1 2 3 4 5
To develop business relationships	PC2	1 2 3 4 5
To develop your perseverance	PC3	1 2 3 4 5
To develop your confidence	PC4	1 2 3 4 5
To develop your financial skills	MC1	1 2 3 4 5
To develop your ability to create systems	MC2	1 2 3 4 5
To develop your strategic planning abilities	MC3	1 2 3 4 5
To develop your ability to come up with new ideas and innovations	EC1	1 2 3 4 5
To develop your ability to take advantage of new opportunities	EC2	1 2 3 4 5

To develop your ability to cope with risk	EC3	1 2 3 4 5
To develop your ability to train employees	HRC1	1 2 3 4 5
To develop your ability to manage others who work for you	HRC2	1 2 3 4 5
To develop your hiring skills	HRC3	1 2 3 4 5
To develop your leadership skills	HRC4	1 2 3 4 5

Q22 (DR9) Course materials for an online course that is NOT affiliated with a university

To develop your communication skills	PC1	1 2 3 4 5
To develop business relationships	PC2	1 2 3 4 5
To develop your perseverance	PC3	1 2 3 4 5
To develop your confidence	PC4	1 2 3 4 5
To develop your financial skills	MC1	1 2 3 4 5
To develop your ability to create systems	MC2	1 2 3 4 5
To develop your strategic planning abilities	MC3	1 2 3 4 5
To develop your ability to come up with new ideas and innovations	EC1	1 2 3 4 5
To develop your ability to take advantage of new opportunities	EC2	1 2 3 4 5
To develop your ability to cope with risk	EC3	1 2 3 4 5
To develop your ability to train employees	HRC1	1 2 3 4 5
To develop your ability to manage others who work for you	HRC2	1 2 3 4 5
To develop your hiring skills	HRC3	1 2 3 4 5
To develop your leadership skills	HRC4	1 2 3 4 5

Section 4: Digital relationship-building experiences

PART 1: FREQUENCY OF ACTIVATION OF CONTEXTS

Q23: Thinking about the past year, please indicate approximately how much time you spend during an average **week** using digital technology for the following types of relationship experiences:

0 = not at all
1 = 1 hour or less
2 = more than one hour, but not more than 2 hours
3 = more than 2 hours, but not more than 3 hours
4 = more than 3 hours, but not more than 4 hours
5 = 4 or more hours

NOTE FOR INTERVIEWER: If the participant indicates that they do NOT activate a context in a typical week to learn business skills, then ask if they have ever accessed this resource to learn business skills over the past year. If they never activate the context, skip the question for PART 2 and record '1' for all competencies in contexts that have not been activated over the past year (for the SPSS analysis). This will save time and eliminate redundancy for the participant.

	How much time do you spend in a typical week using digital technology for:	To learn business skills	For other purposes
RE1	Connecting with a mentor (in which you have a pre-established mentoring relationship)	0 1 2 3 4 5	0 1 2 3 4 5
RE2	Connecting one-on-one with another business professional (who is NOT a pre-established mentor)	0 1 2 3 4 5	0 1 2 3 4 5
RE3	Participating in an online mastermind group (a small group that meets regularly)	0 1 2 3 4 5	0 1 2 3 4 5
RE4	Connecting with other professionals in a FREE-ACCESS online community	0 1 2 3 4 5	0 1 2 3 4 5
RE5	Connecting with other professionals in a PAID-ACCESS online community	0 1 2 3 4 5	0 1 2 3 4 5

PART 2: FREQUENCY OF ACTIVATION FOR COMPETENCY DEVELOPMENT

Of the digital relationship-building experiences that you participate in to learn business skills, you will be asked to rate how frequently you participated in those digital relationship-building experiences **during the last year** to develop specific competencies.

1 = not at all, 2 = rarely, 3 = neutral, 4 = moderately, 5 = a great deal

Q24 (RE1) Connecting with a mentor (in which you have a pre-established mentoring

relationship)

To develop your communication skills	PC1	1 2 3 4 5
To develop business relationships	PC2	1 2 3 4 5
To develop your perseverance	PC3	1 2 3 4 5
To develop your confidence	PC4	1 2 3 4 5
To develop your financial skills	MC1	1 2 3 4 5
To develop your ability to create systems	MC2	1 2 3 4 5
To develop your strategic planning abilities	MC3	1 2 3 4 5
To develop your ability to come up with new ideas and innovations	EC1	1 2 3 4 5
To develop your ability to take advantage of new opportunities	EC2	1 2 3 4 5
To develop your ability to cope with risk	EC3	1 2 3 4 5
To develop your ability to train employees	HRC1	1 2 3 4 5
To develop your ability to manage others who work for you	HRC2	1 2 3 4 5
To develop your hiring skills	HRC3	1 2 3 4 5
To develop your leadership skills	HRC4	1 2 3 4 5

Q25 (RE2) Connecting one-on-one with another business professional (who is NOT a pre-established mentor)

To develop your communication skills	PC1	1 2 3 4 5
To develop business relationships	PC2	1 2 3 4 5
To develop your perseverance	PC3	1 2 3 4 5
To develop your confidence	PC4	1 2 3 4 5
To develop your financial skills	MC1	1 2 3 4 5
To develop your ability to create systems	MC2	1 2 3 4 5

To develop your strategic planning abilities	MC3	1 2 3 4 5
To develop your ability to come up with new ideas and innovations	EC1	1 2 3 4 5
To develop your ability to take advantage of new opportunities	EC2	1 2 3 4 5
To develop your ability to cope with risk	EC3	1 2 3 4 5
To develop your ability to train employees	HRC1	1 2 3 4 5
To develop your ability to manage others who work for you	HRC2	1 2 3 4 5
To develop your hiring skills	HRC3	1 2 3 4 5
To develop your leadership skills	HRC4	1 2 3 4 5

Q26 (RE3) Participating in an online mastermind group (a small group that meets regularly)

To develop your communication skills	PC1	1 2 3 4 5
To develop business relationships	PC2	1 2 3 4 5
To develop your perseverance	PC3	1 2 3 4 5
To develop your confidence	PC4	1 2 3 4 5
To develop your financial skills	MC1	1 2 3 4 5
To develop your ability to create systems	MC2	1 2 3 4 5
To develop your strategic planning abilities	MC3	1 2 3 4 5
To develop your ability to come up with new ideas and innovations	EC1	1 2 3 4 5
To develop your ability to take advantage of new opportunities	EC2	1 2 3 4 5
To develop your ability to cope with risk	EC3	1 2 3 4 5
To develop your ability to train employees	HRC1	1 2 3 4 5
To develop your ability to manage others who work for you	HRC2	1 2 3 4 5
To develop your hiring skills	HRC3	1 2 3 4 5
To develop your leadership skills	HRC4	1 2 3 4 5

Q27 (RE4) Connecting with other professionals in a FREE-ACCESS online community

To develop your communication skills	PC1	1 2 3 4 5
To develop business relationships	PC2	1 2 3 4 5
To develop your perseverance	PC3	1 2 3 4 5
To develop your confidence	PC4	1 2 3 4 5
To develop your financial skills	MC1	1 2 3 4 5
To develop your ability to create systems	MC2	1 2 3 4 5
To develop your strategic planning abilities	MC3	1 2 3 4 5
To develop your ability to come up with new ideas and innovations	EC1	1 2 3 4 5
To develop your ability to take advantage of new opportunities	EC2	1 2 3 4 5
To develop your ability to cope with risk	EC3	1 2 3 4 5
To develop your ability to train employees	HRC1	1 2 3 4 5
To develop your ability to manage others who work for you	HRC2	1 2 3 4 5
To develop your hiring skills	HRC3	1 2 3 4 5
To develop your leadership skills	HRC4	1 2 3 4 5

Q28 (RE5) Connecting with other professionals in a PAID-ACCESS online community

To develop your communication skills	PC1	1 2 3 4 5
To develop business relationships	PC2	1 2 3 4 5
To develop your perseverance	PC3	1 2 3 4 5
To develop your confidence	PC4	1 2 3 4 5
To develop your financial skills	MC1	1 2 3 4 5
To develop your ability to create systems	MC2	1 2 3 4 5
To develop your strategic planning abilities	MC3	1 2 3 4 5
To develop your ability to come up with new ideas and innovations	EC1	1 2 3 4 5

To develop your ability to take advantage of new opportunities	EC2	1 2 3 4 5
To develop your ability to cope with risk	EC3	1 2 3 4 5
To develop your ability to train employees	HRC1	1 2 3 4 5
To develop your ability to manage others who work for you	HRC2	1 2 3 4 5
To develop your hiring skills	HRC3	1 2 3 4 5
To develop your leadership skills	HRC4	1 2 3 4 5

Section 5: Usefulness of Digital Learning Experiences

Q29: For each of the following, rate whether your overall <u>digital learning experiences **as an entrepreneur**</u> have impacted your business in such a way that it's helped you in the following other areas of your life.

1= disagree strongly; 2= disagree somewhat; 3= neutral; 4= agree somewhat; 5= agree strongly

Have your digital learning experiences impacted your business in such a way that it has:		
Improved the time and resources you have available to care for your physical health?	CD1	1 2 3 4 5
Improved the time and resources you have available to care for your mental well-being?	CD2	1 2 3 4 5
Improved your ability to remove yourself from an unsafe situation (such as an abusive relationship), should the need arise?	CD3	1 2 3 4 5
Helped you to develop a strong business network that provides opportunities for business growth and advantage?	CD4	1 2 3 4 5
Helped you to receive improved support from family and friends with regard to your role as a business owner?	CD5	1 2 3 4 5
Increased your likelihood of participating in activities related to policy development for female entrepreneurs?	CD6	1 2 3 4 5
Increased your likelihood of taking advantage of other opportunities to educate yourself further as a business owner?	CD7	1 2 3 4 5
Helped you to have the resources to get help with domestic tasks or childcare, if desired?	CD8	1 2 3 4 5
Helped to pay yourself an appropriate salary when considering your	CD9	1 2 3 4 5

profession, your level of experience, and the nature of the products or services you provide?		
Improved your ability to live in a home and neighbourhood of your choosing?	CD10	1 2 3 4 5
Helped you to overcome feelings of isolation in your role as an entrepreneur?	CD11	1 2 3 4 5
Helped you to develop support and resources to attend local business-related meetings and events?	CD12	1 2 3 4 5
Helped you to develop support and resources to travel broadly for business purposes?	CD13	1 2 3 4 5
Improved the time and resources you have available to participate in preferred leisure activities?	CD14	1 2 3 4 5
Improved your freedom and support to work during preferred times?	CD15	1 2 3 4 5
Improved your freedom and support to pursue leisure activities at preferred times?	CD16	1 2 3 4 5
Helped you to feel respected by others?	CD17	1 2 3 4 5
Improved your ability to make independent decisions about what is best for you?	CD18	1 2 3 4 5

Section 7: Demographic variables

Which response best describes your current situation:

Q30
What is the highest level of education that you have completed:

1= High school diploma
2 = Post-secondary diploma or certification
3 = Bachelor's degree
4 = Graduate degree (e.g. master's degree, PhD, medical degree)
5 = None of the above

Q31
How long have you owned your current business?

1 = Less than one year
2 = 1-2 years
3 = 3-4 years

4 = 5-9 years
5 = More than 10 years

Q32
Are you currently involved in more than one business venture?
1 = Yes
2 = No

Q33
Are you an independent distributor for a multi-level marketing organization?
1 = Yes
2 = No

Q34
Which best describes your current living situation?

1 = Married or common-law partnership
2 = Separated or divorced
3 = Single
4 = Prefer not to answer

Q35
What is your annual business revenue? (NET)

1 = $29 999 or less
2 = $30 000 - $99 999
3 = $100 000 - $199 999
4 = $200 000 - $499 999
5 = $500 000 - $999 999
6 = More than $1 000 000
7 = Prefer not to answer

Q36
 Is English your first language?
1 = Yes
2 = No

Q37
Do you consider yourself to be a person with a disability?
1 = Yes
2 = No
3 = Prefer not to answer

Q38
Do you have a child or other dependent with a disability?
1 = Yes
2 = No
3 = Prefer not to answer

Q39
In what year were you born (e.g.1980)?

Q40: Are you willing to be contacted for a follow-up interview?
    Yes   No

Q41: Is there anything else that you would like to share about your learning experiences as an entrepreneur?

Q42: Do you know any other entrepreneurs who may be willing to participate in my research?

Appendix C: Summary of Findings for Research Participants

Thank you for your participation in my PhD research study, which explored the digital learning experiences of Canadian women who are balancing entrepreneurship with motherhood. Please feel free to contact me if you have any feedback or further thoughts related to these findings.

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Overview of Findings

These results are based on the survey responses of 47 participants. All participants resided in Canada, had at least one child under the age of 18, and owned at least 50% of their business. The vast majority of participants were in their thirties or forties at the time of the survey. Most participants were solo-entrepreneurs.

Respondents were asked how much time they spent activating different digital learning contexts for the purpose of developing business skills and for other purposes.

The most commonly activated digital contexts for learning business skills were:
- Having conversations with others and scrolling through content posted by others on social networking sites (including free-access online communities for business professionals)
- Watching informational videos, reading blog posts, and reading email newsletters
- Having conversations on private messaging platforms
- Having conversations with others using technology (mostly clients, friends, or colleagues; just over half of participants also communicated with a formal mentor or business coach)
- Just over half of participants reported listening to podcasts

*Overall, the extent to which participants activated digital learning contexts was low (1-2 hours per week). The only context that was activated to a moderate to high extent (by roughly half of participants) was scrolling through content posted by others on a social media site.

Different learning contexts were activated for different purposes:
- For example, to develop communication skills, participants mostly watched informational videos, listened to podcasts, and had conversations using technology with other colleagues (not a mentor); however, to develop financial skills, participants mostly used social media (posting and scrolling through content posted by others) and read blog posts/online magazine articles.

*Fewer than 10 participants activated any digital contexts to develop competencies related to coping with risk, training employees, managing others who worked for them, and hiring skills.

Impact of digital learning experiences:
The vast majority of participants also agreed that their digital learning experiences impacted their business in such a way that it impacted these other areas of their life:
- Increased their likelihood of taking advantage of other opportunities to educate themselves further as a business owner
- Helped them to develop a strong business network that provided opportunities for business growth and advantage
- Improved their freedom and support to work during preferred times
- Helped them to develop support and resources to attend local business-related meetings and events
- Improved their ability to make independent choices about what is best for them

At the end of the survey, I asked each participant whether there was anything else she wanted to share anything else about her learning experiences as an entrepreneur. Below are some of the common responses:
- Participants had different learning needs at different times in their entrepreneurial journey. For example, some entrepreneurs were not currently working on developing certain entrepreneurial competencies because they had mastered them through previous learning experiences.
- Participants had different learning preferences. Some preferred online learning experiences, while others preferred learning experiences where they could connect with others in-person.
- Some participants expressed frustration related to discerning the quality of resources and several participants expressed a desire for more Canadian-specific resources for entrepreneurs.
- The nature of participants' learning experiences varied. Some participants described intentionally engaging in certain learning experiences to develop specific skills. Some also described developing entrepreneurial competences as a result of experience or as a result of their interactions with others.