“Virtually a Sisterhood” Virtual Collaboration and Its Impact on Social Connectedness Among a Group of Culturally Diverse Women

George Banks-Weston

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“VIRTUALLY A SISTERHOOD”
VIRTUAL COLLABORATION AND ITS IMPACT ON SOCIAL CONNECTEDNESS
AMONG A GROUP OF CULTURALLY DIVERSE WOMEN

by

George Banks-Weston

Bachelor of Science
York College of Pennsylvania, 2008

Master of Science in Education
James Madison University, 2010

Submitted in Partial Fulfillment of the Requirements
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University of South Carolina
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Accepted by:

Michael Grant, Major Professor
Tammi Kolski, Additional Major Professor
Fatih Ari, Committee Member
Ismahan Arslan-Ari, Committee Member
Anna Clifford, Committee Member
Cheryl L. Addy, Vice Provost and Dean of the Graduate School
DEDICATION

To my husband, Mark, thank you for your unwavering love, support and encouragement as I embarked on my doctoral journey. Your compassion and thoughtfulness were a mainstay in the attainment of this dream, and I am forever grateful for your presence in my life.

To my parents, George and Kimberly, from an early age you instilled in me the values of education, service, and hard work. I continue to carry these values with me, and they served as a personal mantra as I approached the end of my doctoral degree. The impact I am able to make in this world is a testament to your teachings and love.

To my younger siblings, Cree and Torie, you both are constant reminders of the beauty and brilliance that exists in this world. Thank you for challenging me to see new perspectives, for being my cheerleaders, and for always having faith in my abilities.

Finally, to the host of women of color in my life who have been insurmountable examples of perseverance, temperance, and grace. Thank you for fighting for my right to exist freely, and know I am always in your corner, even when the world is not.
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ABSTRACT

The purpose of this action research study was to evaluate the impact of virtual collaboration on social connectedness among a group of culturally diverse women participating in an online business strategy course. This study was guided by three research questions: (1) How and to what extent does virtual collaboration impact social connectedness among a group of culturally diverse women participating in an online business strategy course? (2) How and to what extent does a group of culturally diverse women use virtual collaboration tools for activities in an online business strategy course? (3) What are the experiences of culturally diverse women participating in an online business strategy course?

This research study was situated within The Prominence Association for Women, a membership organization for women of color who are entrepreneurs. Data was collected from three participants (n=3) who were members of the organization participating in an eight-week online business strategy course that also functioned as a virtual community of practice (Ardichvili, 2008). A convergent parallel mixed methods design was employed to collect data. Quantitative instruments included presurvey and postsurveys versions of the Online Social Connectedness Survey instrument (Bolliger & Inan, 2012) and a self-designed Technology Use Survey. Qualitative data was collected in three phases of semi-structured interviews with each participant being interviewed at the beginning, midpoint, and end of the eight-week course.
Quantitative data from the Online Student Connectedness Survey was analyzed with descriptive statistics and results indicated an increase in feelings of social connectedness across the three subscales (comfort, community, and interaction and collaboration). For the Technology Use Survey, the frequency of engagement with virtual collaboration tools for different activities varied across participants. Inductive analysis for qualitative data produced one assertion (participants perceived technology can support the development of strong intimate relationships when entrepreneurs who are women share similar backgrounds, common goals, and past experiences), and three themes: (a) entrepreneurial progression, (b) richness of synchronous interaction, and (c) interdependence fosters authentic connections. Findings were drawn from the converged data. These convergent findings revealed that virtual collaboration can positively impact social feelings of connectedness when activities are supported by virtual collaboration tools that allow participants to work towards common goals, to build a support network, and to participate in meaningful skill development that could contribute towards advancement as entrepreneurs.
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CHAPTER 1

INTRODUCTION

National Context

According to reports from the United States Census Bureau (2013) ethnic minorities and women have been largely underrepresented in a variety of professional industries. Recent figures have shown that women represent 28% of the workforce, while African Americans only account for 11% and Hispanics account for 15% of the workforce (Fayer, Lacey, & Watson, 2017). With employment opportunities in expected to grow exponentially in professional industries by 2024 (Bureau of Labor Statistics, 2017), and with diversity projected to have a major impact on technological advancements, economic growth, and large-scale social change (Hutchins & Kovach, 2019), the need for strategies to attract and retain diverse professionals in these fields has been deemed essential (Rice, 2017). As time has progressed, entrepreneurship is an area that has received special attention, due to the increasing volume of professional women and minorities who have chosen self-employment or creating small business as a career path (Lyons & Zhang, 2017).

The United States Senate Committee on Small Business and Entrepreneurship (2020) reported that of the 27 million small businesses in the United States, approximately 36% were led by women and approximately 29% were led by minorities (United States Small Business Administration, 2019). This same report stated that the number of small businesses is slated to grow exponentially over the next decade. While
research has shown that shifting focus to entrepreneurship could be a promising strategy for fueling diversity in this arena, women and ethnic minorities have historically experienced barriers such as discrimination, and marginalization, barriers that have negatively impacted strategies to retain diverse talent across a variety of industries (Alfred, Ray, & Johnson, 2019; Rice, 2017).

As it comes to entrepreneurs specifically, research revealed that in addition to discrimination and marginalization, women and ethnic minorities have also encountered disparities in securing funding (Neville, Forrester, O’Toole, & Riding, 2018; Scott & Hussein, 2019), have had less access to support networks (Hoyt & Murphy, 2016; Pace, 2018) and have not been presented with as many opportunities for skill development and career growth as their counterparts (Ramsey; 2019; Rice, 2017). At the same time, women who also identified as ethnic minorities (also known as women of color) have faced even more complex challenges based on their dual “minority status” (Alfred et al., 2018; Crenshaw, 1990; Ong, Wright, Espinosa, & Orfield, 2011). These additional barriers have led to feelings of isolation or inadequacy which have been shown to have an impact on their professional success (Johnson et al., 2017; Ong et al., 2011; Rice, 2017).

With opportunities for support networks being scarce, women of color have often been forced to seek out or build their own support systems (Ong, Smith, & Ko., 2018; West, 2017, 2019). Participation in these types of support networks, also known as counterspaces, has been shown to lessen feelings of isolation helping these women form connections with others who may also have had similar challenges with discrimination and marginalization (Johnson et al., 2017; Ong, Smith, & Ko, 2018; West, 2017, 2019). These counterspaces have also presented opportunities for these women of color to
develop new skills that have supported their career growth and business success (Ong et al., 2018; Rice, 2017). When opportunities for in-person support have not been possible, research has shown that virtual or online environments have been leveraged to support professionals from underrepresented populations in building that support and making those connections (Altebarmkian & Alterman, 2017, 2019). In these online environments, technological tools that support communication, collaborative work, and community building (Kumi-Yeboah, Yuan, & Dogbey, 2017) aided individuals in building stronger connections with peers and colleagues (Charmaraman, Chan, Price, & Richer, 2015), provided opportunities for mentorship (Mondisa, 2014; Sams et al., 2016), and promoted this population’s educational and career success (Kumi-Yeboah et al., 2017; McLoughlin, Patel, O’Callaghan, & Reeves, 2018).

Local Context

Founded in 2012, The Prominence Association for Women is a national paid membership organization for professional women of color. As a part of their membership individuals receive a number of key benefits. These benefits include admission into the Prominence Leadership Academy, a suite of online self-paced courses, one-on-one coaching with one of the founders, as well as opportunities to participate in regular career development and career accelerator courses (“About Us”, 2020). The organization has a national footprint with chapters established in The Greater Philadelphia Area, the Washington D.C. Metropolitan Area, and a Midwest chapter based in Detroit. With this being the case, much of the national organization’s resources are accessed through an online portal via The Prominence Association for Women website, while local chapters provide in-person networking opportunities and workshops on a quarterly basis.
The membership is diverse in age (ranging from mid-20s to late-50s), ethnicity (e.g., African American, Hispanic/Latino, and Asian), educational background (e.g. high school diploma, associate’s degree, bachelor’s degree, graduate degree) and professional background (e.g., Information Technology, Business Consulting, Finance, Supply Chain Management, and Agriculture). In addition, over 90% of members identify as entrepreneurs and have been at the helm of their online businesses for at least a year (“Prominence Association for Women Annual Report”, 2019). In many cases, members’ online businesses are directly related to their career. For example, one member who had a twenty-year career in supply chain management, recently started an online party supply business. Whereas another member who is a nutritionist, started an online coaching and wellness firm.

Since the creation of The Prominence Association for Women, over 100 members have joined the organization with membership drives taking place twice a year (Spring and Fall). In 2019, there were approximately 75 active members with the Philadelphia Chapter having the largest membership (35 women), followed by the Washington, D.C. Chapter (23 women) and ending with the Midwest Chapter based in Detroit (17 women). In a 2019 survey, the ability to connect with other professional women of color was expressed as the top reason members decided to join this organization (“Prominence Association for Women Annual Report”, 2019). Second to this, was the ability to be coached by the organization’s founder.

From 2016 to 2019 the average tenure of an active member was approximately three years. Following that third year of membership, the organization had seen a decline in membership of about 75% each year (“The Prominence Association for Women...
Annual Report”, 2019). Through evaluation surveys and informal feedback regarding membership interest and retention, more tenured members of the organization expressed that programs and resources were geared towards the onboarding of new members and that resources for existing or more tenured members were lacking. Members also expressed that as the organization grew, opportunities to collaborate with each other and to network became more difficult as the emphasis remained on recruitment and onboarding versus retention.

In 2019, the leadership of The Prominence Association for Women attempted to address this feedback by launching a new professional development program known as Mastermind Sessions. Mastermind Sessions were created to provide both new and more tenured members (across the national footprint of the organization) the opportunity to collaborate to develop a skill, goal, product or service related to entrepreneurship (“Mastermind Sessions”, 2020). Each Mastermind Session has been themed and involved a mix of 1-hour workshops, peer collaboration, and professional coaching and feedback from industry experts. Mastermind Sessions took place at least once per quarter over an eight-week period and were designed as synchronous online courses with additional opportunities to collaborate and partner inside and outside of the weekly sessions.

Since its inception, Mastermind Sessions have had an enrollment of approximately 10 – 15 members across the national footprint of the organization. Although the intent of this program was to engage more tenure members, those in leadership of the organization noted that Mastermind Sessions are most popular among those within their first year of membership with the organization. To continue addressing
the needs of members after this period, leadership has been open to employing other strategies that increase their engagement with the organization.

**Statement of the Problem**

Professional women of color often encounter discrimination and marginalization that negatively impacts their careers (Neville et al., 2018; Scott & Hussein, 2019). Additionally, based on their status as double minorities, these women also experience threats of being stereotyped which can leave them feeling isolated (Alfred et al., 2018; Crenshaw, 1990; Johnson, Ong, Ko, Smith, & Hordari, 2017). Among the challenges faced by these individuals is the lack of access to support systems that provide them opportunities for mentorship, networking, and professional development opportunities (Ong et al., 2018; Rice, 2017). Research has shown that when these women have access to resources, networks, and spaces where they feel supported, understood and connected, it has a positive impact on their personal and career success (Kumi-Yeboah et al., 2017; McLoughlin et al., 2018).

**Purpose Statement**

The purpose of this action research study was to evaluate the impact of virtual collaboration on social connectedness among a group of culturally diverse women participating in an online business strategy course through The Prominence Association for Women.

**Research Questions**

This study was guided by the following research questions:
1. How and to what extent does virtual collaboration impact social connectedness among a group of culturally diverse women participating in an online business strategy course?

2. How and to what extent does a group of culturally diverse women use virtual collaboration tools for activities in an online business strategy course?

3. What are the experiences of culturally diverse women participating in an online business strategy course?

**Statement of Researcher Subjectivities and Positionality**

My passion for research involving inequality and access for minorities is attributed to my own educational and professional experiences. My interest in this area began when I was an undergraduate student attending a predominantly white institution on a full-tuition scholarship. Being an underrepresented minority in this setting, I encountered several experiences involving an unwelcoming campus climate, apathetic attitudes from college administration, and misunderstandings with my classmates that began to shape my view of the world. These experiences also impacted my academic and professional development and drove me to become committed to changing the culture of my institution. At the time this meant joining several diversity focused organizations and declaring a major in Behavioral Science, where I focused much of my studies on the social psychology of race and oppression. After receiving my bachelor’s degree, I immediately enrolled in graduate school where my research focused on how access to technology prior to college correlated to the academic success of minority students from low socioeconomic backgrounds.
This collective background in diversity research and professional development greatly influenced my professional career. As a learning and organizational development professional who worked in the private sector for over eight years, I was often tasked with the development of diversity training, serving on in-house committees geared toward promoting equity and inclusion, and creating initiatives to attract and retain diverse talent. In each of these capacities, I utilized technology to provide solutions. In several of these, I also witnessed a strong need for diverse talent in STEM fields. As I approached my doctoral research, it became essential for me to connect these academic and career experiences with a research topic that aligned with my values and a transformative worldview (Creswell, 2014).

As discussed in Creswell (2014), research with a transformative worldview often centers on issues of oppression and inequality, and included researchers, like myself, who came from marginalized or disadvantaged populations. Research conducted in the transformative paradigm can also stem from an understanding that this inequality has consequences for these disadvantaged populations (Frey, 2018). Taking this into consideration, my desire as a researcher was to explore if virtual collaboration could have an impact on social connectedness among a group of culturally diverse women participating in an online business strategy course. As an action researcher, I decided on a research setting in which I have some sphere of influence (Mertler, 2017). As a membership of the leadership team for The Prominence Association for Women since 2017, I have actively participated in the planning and facilitation of Mastermind Sessions and I also offered informal coaching and mentorship to members in hopes that I could add value to their learning experiences and careers.
At the initiation of this research study, there were several considerations I needed to make as it referred to positionality. For this study, I was at an interesting juxtaposition as a board member who was involved in the financial and business decisions of The Prominence Association for Women, but who was also stepping into the role of a researcher. This meant that I was an insider, who had moved into the role of an outsider to conduct the study (Herr & Anderson, 2005). I also shared a similar background with some of the members of the organization as my career has focused on job roles that aligned with STEM fields. With this being the case, it was essential that I was cognizant of the wants and needs of the population studied and that I ensured reciprocity occurred within this dynamic (Herr & Anderson, 2005). To ensure reciprocity, I included participants in the review of the findings, and as necessary, incorporated their opinions and thoughts into my recommendations (Creswell, 2014).

Another consideration from this position, which presented difficulties, was to ensure my personal opinions and past experiences did not influence any of my research process or my interpretation of the findings. As it pertained to the research process specifically, Bourke (2014) noted that a researcher should continually reflect upon how their position is limiting the study at each step of the research process. This same study also stated that it was also advantageous to address positionality with participants at the onset of the study to make them aware of the personal experiences I brought to the story as a researcher. This aligned with another aspect of positionality in that I needed to be cognizant of how participants view my role from a hierarchical and power perspective (Herr & Anderson, 2005). Even though my personal history with participants was limited, my role as a leader in the organization in which they were members created a
situation where they could have felt a sense of commonality and openness with me as a researcher (Dwyer & Buckle, 2009). This latter piece could have contributed to their view of my role. These factors could have posed implications for how I conducted data collection in my study, as I did not want my position to influence the behaviors of participants. This consideration led me to use qualitative methods that allowed participants to talk about their experiences in their own words (Creswell, 2014).

Lastly, as I embarked on this research journey, I needed to recognize that understanding my role as a research and the position it placed me in was an iterative process. As an action researcher and as a qualitative researcher I was deeply connected to this study. Being constantly aware of my position and values and the experiences that shaped them was essential.

**Definition of Terms**

The following list defines the terms utilized in this study.

**Audio-conferencing technology:** Voice communication occurring via online technology or by telephone, may include image/text sharing capabilities (Wainfain & Davis, 2004).

**Communities of Practice:** A community of practice was a system where members develop a shared understanding about who they were, what they were doing and how each of these components applied to them individually and as a collective community (Lave & Wenger, 1991).

**Computer-mediated technology:** Technology that allowed text, video, and other files to be received via computer without real-time voice capabilities (Wainfain & Davis, 2004).
**Counterspaces:** Described as physical, ideological or even conceptual spaces occupied by underrepresented populations a safe space to interact and engage freely, absent of oppressive structures (Ong et al., 2018).

**Culturally diverse women:** The experiences of culturally diverse women as explored through a lens of intersectionality. Coined by Crenshaw (1990), the concept of intersectionality was presented as “a tool to analyze, how sociocultural hierarchies and power differentials, which produce in/exclusion around discursively and institutionally constructed sociocultural categories such as gender, ethnicity, race, class, sexuality, age/generation, nationality, etc. interact” (Lykke, 2005, p. 8). In this study, this lens is placed on women of color, who vary in age, ethnicity, educational, and occupational background.

**Ethnicity:** Ethnicity determined whether a person is of Hispanic origin or not. For this reason, ethnicity is broken out in two categories, Hispanic or Latino and Not Hispanic or Latino. Hispanics may report as any race (United States Census Bureau, 2017).

**Entrepreneurs:** An entrepreneur is an individual who creates a new business, bearing most of the risks and enjoying most of the rewards (Hayes, 2020).

**National origin:** According to the Equal Employment Opportunity Commission (2018), national origin is defined as place of origin or birth as well as physical, cultural or linguistic characteristics, such as an accent.

**Race:** Individuals who self-identified as Black or African American, Hispanic, Asian, Pacific Islander or Native Americans (Rice & Alfred, 2014).
**Sense of belonging:** Sense of belonging was designed as how integrated an individual feels to their network and how connected they feel to people they interact with within that network (Lee & Robbins, 1995).

**Social capital:** Social capital theory was built on the notion that social constructs impact how one views their role in a group (Bordieu, 1985).

**Social connectedness:** A type of social capital was defined as an internal sense of belonging. Social connectedness was one’s opinion of self in relation to other people within a group or network (Lee & Robbins, 1995). For this study, social connectedness focused on the perceived emotional distance between one’s self and other people within their network.

**Underrepresentation:** For purpose of this study, underrepresentation will be defined by race, gender, ethnicity, physical or intellectual disability or national origin.

**Video-conferencing technology:** Technology that uses real time video streaming with voices of individuals, may include shared images or text. (Wainfain & Davis, 2004).

**Virtual collaboration:** For the context of this study, virtual collaboration was explored through how participants interact within a Virtual Community of Practice (VCoP) and the technological tools that supported the interaction process (Ardichvili, 2008). Originally, coined by Lave and Wenger (1991) a community of practice was formed by people who engage in a process of collective learning in a shared domain.
**Virtual collaboration tools:** Defined as digital, remote, or mobile technologies that support knowledge sharing, communication, and task completion among a group of individuals working toward a common goal in an online environment (Poppe, Brown, Recker, Johnson, & Vanderfeesten, 2017). For purposes of this study these tools were categorized as audio-conferencing, videoconferencing, and/or computer mediated (Wainfan & Davis, 2004).

**Virtual Community of Practice (VCoP):** Virtual communities of practice (VCoPs) were defined as communities where members share and create knowledge in an online environment when opportunities for in-person interaction are limited or non-existent (Ardichvili, 2008).

**Women of color:** Refers to the “sociopolitical designation for women of African, Caribbean, Asian and Latin American descent, and Native peoples of the U.S.” (Mohanty as cited in Vaccaro, Swanson, Marcotte, & Newman, 2019).
CHAPTER 2
LITERATURE REVIEW

The purpose of this action research study was to evaluate the impact of virtual collaboration on social connectedness among a group of culturally diverse women participating in an online business strategy course offered through the Prominence Association for Women. This review of literature seeks to explore the three main research questions (1) How and to what extent does virtual collaboration impact social connectedness among a group of culturally diverse women participating in an online business strategy course? (2) How and to what extent does a group of culturally diverse women use virtual collaboration tools for activities in an online business strategy course? and (3) What are the experiences of culturally diverse women participating in an online business strategy course?

In addition to the research questions, the literature search was guided by a combination of key terms and variables central to this study. These variables included: (a) social capital theory and subsequently, social connectedness, (b) virtual collaboration, and (c) the professional experiences of women of color. By aligning each of these variables to specific sections in this literature review I provided a thorough overview of the body of literature concerning virtual collaboration and its impacts on social connectedness among women of color. Each of the three topics included in this literature review was explored through a database search utilizing a unique combination of search terms. For searches around social capital
theory and social connectedness, and virtual collaboration, the reference databases Google Scholar, Education Source and ERIC were utilized. For the topic professional experiences of women of color settings, Business Source was an additional database that was utilized, and it returned many favorable results.

There were a variety of search terms used for each topic. For social capital theory and social connectedness search terms included social capital theory [and] social connectedness, social connectedness [and] underrepresented populations, and social connectedness [and] online environment. Additional bibliographic searches of articles helped me to identify empirical research on social capital theory and aided me in strengthening this portion of the literature review. For virtual collaboration, the keywords for search included: virtual collaboration [and] women, as well as virtual collaboration [and] women of color, virtual collaboration [and] underrepresented populations, virtual collaboration tools, online environments [and] communities of practice (CoPs), and CoPs [and] underrepresented populations. It is important to note that throughout the research process many articles emerged framing CoPs in online environments as virtual communities of practices. Furthermore, the search terms CoPs and underrepresented populations, revealed an abundance of results related to counterspaces and women of color. Because this study sought to explore the experiences of a group of culturally diverse women, I utilized those search results as an opportunity to further explore the benefits that counterspaces offer this population.

The empirical research for each of these topics, and how they are connected to the purpose of this study and research questions will be explored in this chapter. This will
include a comprehensive literature review of the following (1) theoretical underpinnings, (2) virtual collaboration and (3) the professional experiences of women of color.

**Theoretical Underpinnings**

This section discusses social capital theory and its constructs, framing the theories most relevant to this study. Social capital theory holds that social constructs impact how one views their role in a group (Bordieu, 1985). The central tenets of social capital theory are social connectedness and sense of belonging. This section explores the existing body of research providing a comprehensive overview about (a) social capital theory, (b) social connectedness and sense of belonging, (c) measuring social connectedness, (d) social connectedness and underrepresented populations, and (e) social connectedness in virtual environments.

**Social Capital Theory**

Social capital was developed as a theoretical framework centered on how individuals engage in collective behaviors that maintain social order within a group or network (Bordieu, 1985; Lee & Robbins, 1995). It holds that as individuals engage within these networks, they can leverage many collective and personal resources, which may allow them to amass several benefits such as expanding their social network, developing skills and integrating fully into a community (Lee & Robbins, 1995). Literature has categorized these personal and collective resources as cultural capital, human capital, social governance, and economic growth (Lee & Robbins, 1995; Lucht & Batschelet, 2019).

Lucht and Batschelet (2019) hold that these resources and the individuals they benefit are what defines a network and are factors that differentiate a particular network
from others. Resources can be applied to the collective network, as well as to specific individuals participating within that network (Lee & Robbins, 1995). However, because social capital represents a type of emotional currency, individuals who have acquired less social capital within this network may be at a disadvantage in acquiring the full scope of benefits participating fully in the network may offer (Lucht & Batschelet, 2019).

The foundation of social capital theory is derived from three individuals, Bourdieu (1986), Coleman (1988), and Putnam (1993). Bourdieu (1986) introduced social capital as a concept correlating it to economics. In his research, he presented the idea that social capital is built through social relationships that provide individuals a pathway to resources. The second part of Bourdieu’s framework considers the quantity and quality of those resources and how they are directly linked to an individual’s connection to a group. Social capital theory evolved further through Coleman (1988), whose work is arguably the most notable among seminal social capital theorists.

Coleman (1988) discusses how social capital is a vessel in building human capital. The researcher defines human capital as categorized by specific behaviors, interactions, or norms within a group. Most notably, these include behaviors that build trust, and that are grounded in agreed upon obligations or expectations that an individual assumes through their participation in this group or network. Coleman (1998) also discusses how social capital can allow individuals to build reciprocal and mutually beneficial relationships within their network.

A final theorist in social capital theory is Putnam (1993). Putnam holds that social capital is embedded in networks of social interaction and argued that social capital was necessary to society as a whole because without it individuals are unable to activate
collective action. In his theory, the currency of social capital was trust, and how that trust is exchanged and negotiated to facilitate collective action or to obtain mutual benefits.

Modern research on social capital evolves this theory, identifying social capital as a construct that can be directly aligned to the social and economic well-being of individuals who belong to groups, networks, or communities (Waller, Costen, & Wozencraft, 2011; Zhang, Anderson, & Zhan, 2011). Waller et al. (2011) highlight that the degree of social capital’s influence can be connected to an individual’s perception of belonging within these groups, and how this perception impacts his or her connection to other individuals in this group. There is value connected to an individual’s sense of belonging, and subsequently, his or her social connectedness to a group or network, these two components are often identified as the two major tenets of social capital theory (Hagerty & Patuski, 1995; Waller et al., 2011).

**Sense of Belonging and Social Connectedness**

Social capital theory is comprised of two major concepts, sense of belonging and social connectedness (Bordieu, 1986). This section explores both concepts, how they are measured, and how they play a role in how an individual is integrated into an environment.

Sense of belonging measures how integrated an individual feels to his or her network and how connected he or she is to people they interact with within that network (Lee & Robbins, 1995). There are two factors that assess one’s sense of belonging within a group. The first is his or her perceived value or importance to the group and the second is the characteristics and behaviors that he or she shares with others in the group (Freeman, Anderman, & Jenson, 2007). When an individual has a strong sense of
belonging it means they feel fully integrated into their environment and as such, can maximize opportunities to benefit from the resources of that environment.

An internal form of sense of belonging is social connectedness (Costen et al., 2011). Social connectedness is centered on one’s opinion of his or her self in relation to other people within a group or network and represents the emotional distance between one’s self and other people within his or her network (Lee & Robbins, 1995). It is also viewed as the strength of the relationships an individual has to others, and how these relationships influence their interactions with others in a particular network. Research has also identified feelings of social connectedness as an indicator of the speed at which an individual acclimates to a new network (Hare-Duke, Dening, De Oliveira, Milner, & Slade, 2018; Lee & Robbins, 1995).

Measuring Social Connectedness

The empirical research utilizes a number of tools to measure and analyze social connectedness. In this section, an overview of these tools is presented including the foundational instrument, the Social Connectedness Index (Bailey, Cao, Kuchler, Strobel & Wong, 2018), as well as the instrument that is widely used in educational and professional environments, the Social Connectedness Scale (Carroll, Bower, & Muspratt, 2017). The existing research also reveals a tool designed to measure these feelings among a community of learners in an online course known as the Online Student Connectedness Survey (Bolliger & Inan, 2012).

Social Connectedness Index. Many studies measure feelings of social connectedness through the Social Connectedness Index (Bailey et al., 2017). The Social Connectedness Index is a survey instrument that analyzes the intensity of social
connectedness within different geographic regions in the United States. Using data from social networks, such as Facebook, the researchers leverage this instrument to draw correlations between geographical distance and social interaction, ultimately tying it to the probability of friendship. Using the tool in this way aid researchers in identifying socialization trends within a variety of communities and geographic regions. Adaptions of the Social Connectedness Index can be found in the research to explore social interactions in communities based on specific demographic data, such as race, gender, sexual orientation, ethnic background/origin, and age (e.g., Austin & Goodman, 2017; Blau et al., 2016; Cao, Meng, & Shang, 2018; Cocquyt, Diep, Zhu, DeGreef & Vanwing, 2017; Lee, Keough, & Sexton, 2011).

**Social Connectedness Scale.** The Social Connectedness Index has informed other measurement tools especially in research studies that utilize educational or professional settings (Carroll et al., 2017; Phillips, Lawler, Wells, Milson & Hartley, 2018). These studies contextualize the instrument to these specific environments, using it to develop a number of scales, surveys, and data analysis tools (Lee & Robbins, 1995; Lee & Yoo, 2004). The most notable of these scales is called the Social Connectedness Scale (Carroll et al., 2017; Lee & Robbins, 1995). Using Kohut and Strozier’s (1985) social psychology theory as a framework, the Social Connectedness Scale measures an individual’s internal sense of belongingness. It is an eight question Likert-type survey tool that is designed to address each of the three areas of belonging: (1) connectedness, (2) affiliation, and (3) companionship.

**Online Student Connectedness Survey.** As online learning has become more prevalent, the Online Student Connectedness Survey has been utilized as a tool to
measure a learner’s perceptions of his or her interactions and experiences in online learning environments (Bolliger & Inan, 2012). The instrument was developed on the premise that in order for online learning to be meaningful, it must be socially and academically integrated. The instrument includes 25 Likert-type items aligned to four subscales including: (1) community, (2) comfort, (3) facilitation, and (4) interaction and collaboration. These four subscales measure factors that influence feelings of social connectedness as it relates to online learning environments (Bolliger & Inan, 2012).

The Online Student Connectedness Survey has been used in the existing body of research as one of the few instruments that measures social connectedness in online learning environments (Bolliger & Inan, 2012; Ford & Inan, 2013). The Online Student Connectedness Survey has also been leveraged in other studies designed to understand factors influencing learners’ success in online learning programs (Jamison & Bolliger, 2020; Zimmerman & Nimon, 2017). Jamison and Bolliger (2020) revealed that statistically significant differences exist when responses are aligned with gender and progress towards degree. In addition, Zimmerman and Nimon (2017) identified the Online Student Connectedness Survey as both valid and reliable in assessing feelings of social connectedness among learners in online courses at institutions of higher learning.

The Online Student Connectedness Survey continues to inform and be compared to other instruments that explore feelings of community among students in online programs (Irani, Wilson, Slough, & Rieger, 2014; Randolph & Crawford, 2013; Sharp, 2014). With Irani et al. (2014) using the Online Student Connectedness Survey to inform their research on graduate student experiences in on-campus and online environments, and Randolph and Crawford (2013) drew on the Online Student Connectedness Survey to
explore factors that measure sense of community in their modification of their survey instrument. Sharp (2014) found correlations between the Online Student Connectedness Survey and the Community of Inquiry Scale, a tool used to measure learner perceptions of community in online environments. Their findings illustrate how the Online Student Connectedness Survey can be leveraged as a predictor in social presence and identifying the need for flexibility in learning environments.

Social Connectedness and Underrepresented Populations

As it relates to underrepresented populations, social connectedness is often explored alongside social identity theory (Graham-Bailey, Cheeks, Blakenship, Stewart, & Chavous, 2018; Ngabaza, Shefer, & Clowes, 2018). Social identity theory is a process for explaining how an individual’s sense of self can be determined through their connection to given social groups (Tajfel, Turner, Austin, & Worche, 1979). Similar to social connectedness, social identity is aligned to three constructs, individual self, relational self, and collective self (Brewer & Gardner, 1996). Individual self is how an individual views his or her unique characteristics that differentiates him or her from others. Relational self is related to the relationships an individual forms with significant others. Collective self is how an individual belongs or is excluded from a particular group (Brewer & Gardner, 1996). Each construct of self is dependent upon an individual’s affiliation with including gender, class, race, sexuality and religion (Liu, Wei, & Simon, 2017; Tajfel et al., 1979). As such, social identity theory plays a large role in studies related to social connectedness and how individuals who belong to one or more underrepresented groups navigate and progress through their education and in their professional careers (Callahan, Libarkin, McCallum, & Atchinson, 2015; Irgens, 2019;
Lee & Robbins, 1995; Ong et al., 2018). This includes how feelings of connectedness can impact the academic careers of underrepresented students (Museus & Saelua, 2017; Waller et al., 2013) and how professionals persist in their industries (Callahan et al., 2015; Irgens, 2019).

Waller et al. (2017) reveal that social connectedness can be an influencer in an individual’s ability to acclimate to a learning environment. Aligning with this study, Museus and Saelua (2017) highlight that more culturally engaged climates can positively impact feelings of connectedness and belonging among underrepresented students. Social connectedness in learning environments can also affect success (Bailey et al., 2017; Mishra, 2020; Museus & Saelua, 2017; Waller et al., 2013). Feelings of connectedness within these environments have been measured as they relate to relationships with faculty, peers, and campus climate (Mishra, 2020; Museus & Saelua, 2017; Waller et al., 2013). Factors that positively influence this connectedness are college campuses that intentionally embrace diversity and inclusion as well as the depth and quality of relationships with peers or faculty who share similar ethnic backgrounds (Waller et al., 2013), and support services such as counseling and peer support (Mishra, 2020). When transitioning from an academic setting to professional, social capital has similar outcomes and implications.

Social connectedness also has implications in professional settings. Research indicates that when an individual has had a strong sense of connection to his or her organizational culture it has a positive impact on his or her performance, mental health, and overall well-being (Framke et al., 2019; Virick & Greer, 2012). Framke et al. (2019) concluded that when an individual has had a strong sense of belonging with a
professional setting it influences their job satisfaction, which also results in lower levels of physical exhaustion and fatigue. This, in turn, aides them in unlocking many benefits and opportunities to help them persist in their career and help them achieve professional success (Virick & Greer, 2012; Yoon, Hacker, Hewitt, Abrams & Clear, 2012). These benefits can include a strengthened network, access to mentors, as well as promotional opportunities. Additionally, when perceptions of sense of belonging are strong, it can also combat feelings of discrimination and isolation that are often experienced by these populations (Irgens, 2019; Ong et al., 2018). Because social connectedness is identified as a factor in the success of underrepresented populations, past research has expressed a need for more studies centered on the professional experiences of these individuals (Ong et al., 2018). Research suggests that to combat underrepresentation and improve the retention of diverse talent in professional industries, strategies that consider social connectedness and sense of belonging must be integrated into strategies (Callahan et al., 2015; Lui et al., 2017; West, 2019).

Social Connectedness in Online Environments

With the advancement of technology, recent research explores the role technology plays in building social capital in online environments. Much of the research showcases the ways in which individuals engage or leverage technological tools within these environments to engage with others, find and create communities, and learn in ways that impact or help them form their social identities and acquire social capital (Antoci, Sabatini, & Sodini, 2012; Grottke, Hacker, & Durst, 2018; Roldan & Sutanonpaiboon, 2017). As such, online interactions have implications on an individual’s feelings of connectedness to other individuals in those networks (Grottke et al., 2018; Roldan &
Sutanonpaiboon, 2017). Additionally, past research on building social capital online uncovered the ways in which the use of technology, namely computer mediated communication tools, supports or interferes with the development of those feelings of connectedness (Antoci et al., 2012; Roldan & Sutanonpaiboon, 2017). In this section, research on social connectedness and how it is built within an online environment is explored.

When social capital is built in an online environment it is referred to as online or digital social capital (Heidari et al., 2020). Although, much of the body of research explores how individuals build social capital in offline settings, the growth and impact of online social networks continues to have implications for how the building of social capital and how feelings of connectedness impact individuals in online environments (Grottke et al., 2018; Heidari et al., 2020). This includes how relationships are built and developed (Li et al., 2019), how learning occurs (Heidari et al., 2020; Mays, 2016), and how personal and professional identities face impacts based on these online interactions (Roldan & Sutanonpaiboon, 2017).

In in-person environments an individual’s feelings of social connectedness can be assessed through their perceptions of their position or belonging in that group, how they feel they demonstrate the predictable behaviors of that group, and the physical traits of the environment (Callahan et al., 2015; Irgens, 2019; Lee & Robbins, 1995). However, in online environments, each of these aspects are more challenging to observe (Slagter von Tryon, 2009). In Slagter van Tryon and Bishop’s (2009) framework, which centers on enhancing social connectedness in online environments, the researchers share the components they believe are needed to further develop these types of feelings. They
suggest that an online environment must be facilitated to allow for participation in norm development, that standards be set for communicating, and that opportunities are allowed for solidifying role differentiation. Their framework aligns with other research on building social connectedness in online environments, whose findings reveal that the development of feelings of connectedness are closely tied to activities and behaviors that support collaboration, open communication, and provide opportunities to identify common goals or to share resources (Grottke et al., 2018; Heidari et al., 2020; Mays, 2016).

Online strategies to enhance feelings of social connectedness can also enhance an individual’s motivation, the building of their professional identity, and their overall wellbeing in online environments, (Heidari et al., 2020; Mays, 2016; Oztok, 2013). For example, social connectedness has been identified as a key component in online learning and teaching (Mays, 2016). For learners, the ability to build social capital and feel connected to other learners and facilitators can promote their academic success and maximize the knowledge they are able to accrue through their participation (Mays, 2016; Oztok, 2013).

Lastly, as it comes to professional purposes, social connectedness can be an influencer in career development, persistence, and achievement (Donelan, 2016; Heidari et al., 2020). These opportunities are often presented through the use of online social networking tools, where individuals can build formal or informal networks (Donelan, 2016; Heidari et al., 2020; Roldan & Sutanonpaiboon, 2017). Through these networks, individuals can contribute their own knowledge expertise and at the same time, learn
from others, and gain access to career opportunities (Donelan, 2016; Heidari et al., 2020; Roldan & Sutanonpaiboon, 2017).

**Virtual Collaboration**

Although definitions of virtual collaboration are varied, it is most commonly defined as activities or acts in a virtual environment centered around a common goal, purpose or task (Taras et al., 2014). For purposes of this study, virtual collaboration will be defined as a group of individuals working toward common goals in an online environment. This work will be supported through the use of audio-conferencing, video-conferencing or computer-mediated technologies also known as virtual collaboration tools (Poppe et al., 2017; Wainfan & Davis, 2004). In this section, the existing body of research on virtual collaboration will be explored through (a) the benefits of virtual collaboration, (b) Virtual Communities of Practice (VCoPs), which is the theoretical framework for the innovation of this study and (c) virtual collaboration tools.

**Benefits of Virtual Collaboration**

Research on virtual collaboration reveals it can be leveraged to enhance learning experiences, communication and interaction, and to achieve common goals (Altebarkmakian & Alterman, 2017, 2019; Zakaria, 2017). With virtual collaboration these aforementioned benefits are linked to the nature and use of technological tools, and also participation in various types of online communities. These communities can exist with in academic environments (Altebarkmakian & Alterman, 2017, 2019; Kumi-Yeboah & Smith, 2016; Kumi-Yeboah et al., 2017) as well as professional environments (Olaisen & Revang, 2017; Zakaria, 2017). For example, Olaisen and Revang (2017) suggested that participation in virtual collaboration can promote collective work and knowledge sharing
that fuels innovation and builds trust. Whereas, Zakaria (2017) correlated virtual collaboration to building relationships and providing opportunities for cross cultural or intercultural communication.

As it relates to enhancing learning experience, virtual collaboration can mitigate or diminish physical barriers or traits that present themselves as barriers in in-person environments (Endersby, Phelps, & Jenkins, 2017; McLoughlin et al., 2018; Zakaria, 2017). These challenges can be more easily resolved when activities that support virtual collaboration are designed to be culturally competent and fit the needs of a variety of multicultural backgrounds and learning styles (Fain & Kline, 2013; Kumi-Yeboah et al., 2017). For example, Kumi-Yeboah et al. (2017) found that when diverse backgrounds and the challenges these individuals face are considered it can positively impact participation in collaborative activities. This echoes research by Fain and Kline (2013) whose findings indicate that cultural influences significantly impact an individual's perceptions of virtual collaboration and can subsequently impact the knowledge they are able to build as a result of their participation.

In more traditional in-person settings, learners can experience intimidation or apprehension towards collaboration based on a number of visible factors such as gender, age, ethnicity or disability (Kumi-Yeboah & Smith, 2016; Kumi-Yeboah et al., 2017). In research by Cheng, Fu, and Druckenmiller (2016) the researchers suggest that one benefit of virtual collaboration is that it promotes environments where learners are more open to expressing themselves. This supports research by Dufour and Reason (2013) who highlight that communication can occur with more reflection and thoughtfulness because these factors do not present barriers. Through reflective thinking, these learners may also
feel more motivated to engage in collaborative activities in ways that increase their confidence in grasping the learning (Du, Zhou, & Xu, 2016; Kumi-Yeboah & Smith, 2016), and promote their ability to achieve individual and team goals (Altebarmarkian & Altman, 2019; Endersby et al., 2017; Zakaria, 2017).

In an exploratory study, Quereshi and Zigurs (2001) share that virtual collaboration is more task-focused which creates an environment where cultural differences are less likely to hinder the progress and completion of work goals compared to more traditional in-person venues. This aligns with recent research on virtual collaboration, which regards it as a benefit to conducting work across regional, national and global teams (Cheng, Fu, & Druckenmiller, 2016; Fain & Kline, 2013; Olaisen & Revang, 2017; Zakaria, 2017). At the same time, virtual collaboration benefits organizations by decreasing workplace costs, creating more opportunities for ideation, and increasing productivity and work product output (Gilsen & Maynard, 2015; Olaisen & Revang, 2017). With Gilsen and Maynard (2015) concluded that virtual collaboration can encourage globalization that promotes diversity of thought, as well as present opportunities for individuals to develop and emerge as leaders. Aligning with this research, Olaisen and Revang (2017) share that the ability to collaborate in an online environment can increase the pace at which work is complete and offer opportunities for individuals to grow and develop in their job roles.

**Virtual Communities of Practice**

VCoPs are defined as communities where members build, share and create knowledge in an online environment (Ardichvili et al., 2003; Ardichvili, 2008). A derivative of communities of practice (Brown & Duguid, 1998; Lave & Wenger, 1991),
VCoPs have been heralded as vital to collective learning in a society that is more reliant on technology (Ardichvili, 2008). Communities of practice operate as systems or networks where members develop a shared understanding about who they are, what they are doing and how each of these components apply to them individually as well as a collective community (Ardichvili, 2008; Hafeez, Alghatas, Fourondi, Nguyen, & Gupta, 2019). Within these systems, those individuals who are less experienced novices can build knowledge and acquire resources from more experienced individuals (known as experts) participating in that community (Lave & Wenger, 1991).

Additionally, communities of practice are often defined by a common sense of purpose and goals (Brown & Duguid, 1998; Lave & Wenger, 1991). With communities of practice emerging as theory in the early 1990s, and with the advancement of technology over the last 30 years, recent research has explored VCoPs across various types of professional settings and how virtual collaboration supports learning activities and interactions therein (Ardichvili, 2008; Ekici, 2017). Within VCoPs, virtual collaboration occurs through knowledge sharing and creation activities that allow a member to glean value from their interactions with other members (Ardichvili, 2008; McLoughlin et al., 2018; Radovan & Kristl, 2017, Sotomayer, 2014). These activities are supported through a variety of types of online settings and technologies. In research, these settings and tools include social networking websites (Hafeez et al., 2019; Porter, Donthu, MacElroy, & Wydra, 2011), learning management systems (Radovan & Kristl, 2017; Sotomayer, 2014), as well as communicative technologies that allow for synchronous and asynchronous interactions (Bower, Dalgarno, Kennedy, Lee, &Kenney, 2015; Mather & Cummings, 2014; McLoughlin et al., 2018). In VCoPs, individuals must
engage with and utilize these tools if they wish to be fully participatory members of that community. For example, many studies on engagement and collaboration in this realm centers on VCoPs comprised of individuals who share a common mission or goal, that work in similar industries (Ardichvili, 2008; Mather & Cummings, 2014; Radford et al., 2017; Radovan & Kristl, 2017) or are in pursuit similar academic paths (McLoughlin et al., 2018; Sotomayer, 2014). In one study, McLoughlin et al. (2018) reveal that commonalities in industry and in goals can impact the value an individual sees in participating in knowledge sharing activities and has been a factor in their motivation to participate in the creation of knowledge and collaboration within that community.

Several virtual collaboration strategies have been identified as relevant to knowledge sharing and learning in VCoPs. These strategies stress the importance of creating inclusive environments where all members feel they can actively participate, even though their participation is often framed as voluntary (Ardichvili, 2008; McLoughlin et al., 2018; Porter et al., 2011). Porter et al. (2011) share that VCoPs are more successful in driving participation from members when those who belong to that community have role clarity and defined responsibilities. This can also include opportunities for members who are experts to provide mentorship to others (Nistor, Baltes, & Schustek, 2012) as well as find ways to disperse the knowledge creation work equally across members (Barnett, Jones, Bennett, Iverson, & Robinson, 2016). In addition, Nistor et al. (2012) holds that members of the community must not only understand what their role is, but also how it aligns with the greater mission, values, and goals of that VCoP.
Along with the need for activities that support role clarity and mobilize individuals around common goals, opportunities to learn and build capability in the use of the technology have been shown to support collaboration in VCoPs (Mather & Cummings, 2014; Nistor et al., 2012). This is because a member’s technological aptitude in addition to their attitude towards these technologies has been shown to impact the extent to which they actively participate in a VCoP (Ardichvili, 2008). Nistor et al. (2012) also found that incorporating training activities that center on using and becoming confident in using technology, can change a members’ attitude towards using those tools, and can encourage knowledge sharing.

Lastly, an overarching strategy that has been shown to impact collaboration in VCoPs, is the ability for individuals to build trust with others from their initiation in the VCoP (Ardichvili, 2008; Barnett, Jones, Iverson, & Bonney, 2012; Nistor et al., 2012) and throughout their membership (Ardichvili, 2008; McLoughlin et al., 2018). This is especially important in VCoPs where members are strangers or have had limited interactions with each other prior to their participation (Barnett et al., 2012; Kyriakidou-Zacharoudiou & Zheng, 2017). Barnett et al. (2012) found that even in an online environment, face-to-face interaction and communication can be a determinant in the ability to build trust. Allowing these types of interactions at the onset of a members’ participation in a VCoP can help them more quickly acculturate to the group, and as such, further motivates them to collaborate with others (Barnett et al., 2012). At the same time, trust can be built by infusing activities that allow members of the VCoP to develop agreed upon norms and rules for how they will interact with one another. This helps to solidify that collaboration is an expectation of participants and allows each member
ownership in how that collaboration plays out in this environment (Ardichvili, 2008; McLoughlin et al., 2018; Hafeez et al., 2019).

When VCoPs include strategies that encourage role clarity, technological aptitude, and trust, it can drive member participation in knowledge sharing and learning activities (Barnett et al., 2012; McLoughlin et al., 2018; Porter et al., 2011). These activities all fall under the umbrella of virtual collaboration, which is an imperative component in how an individual becomes an active and fully integrated member in that VCoP (Ardichvili, 2008; Barnett et al., 2012; McLoughlin et al., 2018). These strategies are supported by the use of a variety of virtual collaboration tools that can be leveraged for communication, sharing information, and achieving common goals and work of the VCoP (Poppe et al., 2017)

**Virtual Collaboration Tools**

Poppe et al. (2017) define virtual collaboration tools are defined as digital, remote, or mobile technologies that supports knowledge sharing, communication, and task completion among a group of individuals working toward a common goal in an online environment. These tools can be used to supplement face-to-face communication and can enhance an individual’s sense of belonging to a group (Chayko, 2014; Faraj, Kudaravalli, & Wasko, 2015; Hung & Yen, 2010). According to Wainfan and Davis (2004), virtual collaboration tools can be divided into three categories: (1) audio-conferencing, (2) video-conferencing and (3) computer-mediated. This section will review the research on these three types of virtual collaboration tools, including their features, benefits, and how they have been leveraged in the body of research.
**Audio-conferencing.** Audio-conferencing tools allow users opportunities for voice communication when face-to-face communication is not possible or inconvenient. These tools are synchronous, and they can also offer additional capabilities, such as sharing and reviewing files or images in real time (Wainfan & Davis, 2007). Audio-conferencing tools often allow for a larger number of participants, which is a benefit for dispersed teams. In collaborative environments, audio-conferencing has been identified as a way to keep participants engaged and aligned with one another (Hurst, 2020; Muszynska, Dermol, Trunk, Đakovic, & Smrkolj, 2015). This is done when members clearly understand their roles, and when conversations or meetings through the use of these tools are structured and purposeful (Muszynska et al., 2015). In their study, Muszynska et al. (2015), show that audio-conferencing tools can also break down barriers in communication among diverse teams, when meetings through this medium are structured and purposeful. In contrast, Hurst’s (2020) research findings suggests that while audio-conferencing can support communication, it is not an effective replacement for face-to-face communication.

**Video-conferencing.** As it relates to virtual collaboration tools, video-conferencing technology is regarded as the most relatable alternative to face to face communication. This is because video-conferencing allows for real time video streaming and voice, where two or more individuals can witness facial expressions, body language and tone of voice in an online environment (Wainfan & Davis, 2004; Wang & Huang, 2018). Research has shown that communication through video-conferencing tools can be more formal and task-oriented than face to face communication (Quereshi & Zigors, 2001; Olaisen & Revang, 2017). In recent research on VCoPs, Wang and Huang (2018)
share that video-conferencing can contribute to more productivity among virtual and blended teams. This is echoed by research of Olaisen and Revang (2017) whose research shows that tools with video-conferencing capabilities can also have a positive influence on communication and team dynamics. Research also shows that virtual collaboration tools with video-conferencing capabilities support the development of relationships and building collective community among teams (McLoughlin et al., 2018; Olaisen & Revang, 2017). Video-conferencing can also increase knowledge-sharing in virtual teams by allowing members of these environments to promote ideation in real time (Hildreth et al., 1998; Olaisen & Revang, 2018; Sutterlin, 2018). In addition, a study by Sutterlin (2018) emphasizes that meaningful interactions using this type of feature can aid in development of relationships that can retain online learners. This aligns with research by Endersby et al. (2017) who notes that video-conferencing tools also have the ability to allow members to coach and support each other in ways that help hone communication and leadership skills. As such, these capabilities can greatly contribute to the overall work of a VCoP (Ardichvili, 2008; Gilson & Maynard, 2015).

**Computer mediated communication.** Computer mediated communication differs from audio-conferencing in that it can be both synchronous and asynchronous (Wainfan & Davis, 2006). Virtual collaboration tools that fall in this category typically include asynchronous features such as discussion boards, wikis, and file sharing tools (Moore, 2016). Tools that are categorized as asynchronous can also be used as information repositories that provide pertinent information to teams (Gilson et al., 2014; Oztok, 2013). They can generally be edited by anyone and offer the option to provide comments on reports, presentations and other work-related documents (Endersby et al.,
2017; Novakovich, Miah, & Shaw, 2017). Other asynchronous tools such as recorded web-conferencing can offer opportunities for discussion for team members in different time zones or when synchronous meetings are not an option (Hurst, 2020). Synchronous tools often include capabilities that differ from asynchronous in that they are often instant messaging programs and document collaboration tools that allow for real time editing and discussion via the internet (Hall, Delello, & McWhorter, 2017; Kabilan, 2016).

Under the umbrella of computer-mediated communication are social media platforms which are heralded among research for their robust asynchronous and synchronous capabilities (Antoci et al., 2012; Kabilan, 2016; Rickels & Brewer, 2017). These tools can assist individuals in the completion of collaborative work, including sharing documents and resources (Hall et al., 2017; Kabilan, 2016), and providing various venues for discussion with peers and colleagues (Donelan, 2016). In relation to VCoPs, Kabilan (2016) revealed that social media platforms support activities that build relationships and can provide professional development opportunities. The researcher further cited these types of tools as ones that encourage meaningful creation of knowledge, by allowing users to engage in features that support constant and varied interaction. This research is further supported by other studies which present social media platforms as having strong capabilities to motivate and engage participants in VCoPs (Antoci et al., 2012; Grottko et al., 2018; Hall et al., 2017).

**Professional Experiences of Women of Color**

In this study culturally diverse women are defined by their identities as women of color and how this intersects with their other identities such as age, ethnicity, profession, educational background. Women who also belong to an underrepresented minority group
(women of color) are disproportionately represented in a number of professional industries and fields (Block, Cruz, Bairley, Harel-Mariana, & Roberson, 2019; Nadal & Haynes, 2012; Wilkins-Yel, Hyman, & Zounlome, 2019). Because of the intersection of these identities, this population encounters unique cultural and social challenges that shape their view of the world, and can impact their achievement (Ong et al., 2018; West, 2017, 2019). In this section, the experiences of women of color who are professionals is explored as it relates to how it impacts their success and achievement across their professional careers. It investigates research that explores a) the barriers and challenges experienced by women of color, and b) how counterspaces have been leveraged as strategies to support their success.

**Challenges and Barriers Experienced by Women of Color**

Across a variety of settings, women of color have encountered several challenges that have impacted their feelings of confidence, well-being, motivation, and have hindered their success. For these women, the experience of being at the intersection of two underrepresented populations poses unique challenges that are not experienced by other underrepresented populations (Block et al., 2019; Nadal & Haynes, 2012; Wilkins-Yel, Hyman, & Zounlome, 2019). Research has shown that oppressive structures grounded in discrimination can impact an individual’s ability to navigate those environments and achieve success (Cornelius, 2013; Proctor & Rogers, 2013; Strayhorn & Johnson, 2016; Wilkins-Yel et al., 2019). This discrimination is varied and typically represents instances of racism and sexism (Sue et al., 2007; Sue et al., 2019). Steele, Spencer, and Aronson (2002) note that this racism is grounded in stereotypes applied to these women by the dominant race or gender in these settings. These discriminatory
actions are defined stereotype threats, which are “the concrete, real-time threat of being judged and treated poorly in settings where a negative stereotype about one’s group applies” (Steele et al., 2002. p. 385).

Stereotypes have often presented themselves in the form of microaggressions and overt discrimination (Sue et al., 2007; Sue et al., 2019). Research defines microaggressions as “brief and commonplace daily verbal, behavioral, or environmental indignities, that communicate hostile, derogatory, or negative racial slights and insults toward people of color” (Sue et al., 2007, pg. 273). Not only do microaggressions refer to verbal and nonverbal interpersonal interactions that underrepresented populations experience but can also be experienced through interactions on social media, organizational policies, and educational curriculums (Sue et al., 2007; Sue et al., 2019; Sweeney & Cooke, 2018; West, 2019). For example, West (2019) explains that the persistence of microaggressions coupled with underrepresentation has been shown to impact their ability to build trust and lead to discomfort, making it difficult to combat the negative perceptions and stereotypes held about them. This aligns with other research by Sweeney and Cooke (2018) who reveal that one of the most prominent issues with microaggressions and their impacts on underrepresented populations is that those in power who perpetrate these indignities are often unaware or unwilling to admit they exist. At the same time, Oguyemi et al. (2020) who share that when leaders in organizations or institutions refuse to acknowledge these behaviors, it makes it more difficult for women of color to address or communicate their feelings regarding these issues. With this being the case, a substantial amount of research suggests that the presence of microaggressions
and discriminations continues to negatively impact women of color across several industries professional industries (Oguyemi et al., 2020; Ong et al., 2018).

One of the larger challenges that women of color face in the pursuit of their careers is that these discriminatory behaviors are often ingrained into the cultures or systems of the environments (Sue et al., 2007; Sue 2019). Additionally, in many instances, the behaviors or interactions that let these experiences persist are not tangible because they are rooted in the settings behaviors, value systems, and processes (Block et al., 2019; Callahan et al., 2015; Cornelius, 2013). This lack of visibility or willingness to acknowledge that they exist by the majority, often make it difficult for these issues to be addressed or combatted in these environments (Block et al., 2019). Unfortunately, when women of color are present in environments where this discrimination persists, it can impact their motivation and undermine their sense of belonging (Dortch & Patel; Vaccaro & Camba-Kelsay, 2016; Vaccaro et al., 2019). Both aspects can in turn make it difficult for them to develop relationships, to ask for or to obtain support (West, 2019), and to build trust (Vaccaro & Camba-Kelsay, 2016), all of which are aspects that have been shown to be closely tied to achievement across their educational and professional careers (Hoyt & Murphy, 2016; Johnson, Thompson, & Brown, 2017; West, 2017, 2019). West (2017) notes that this can be a double-edged sword because their discomfort or inability to build trust in these environments, can mean that they are unable to get the support or professional development they need to succeed. Additionally, this means they may never fully integrate into these environments and as such be at a disadvantage in receiving many of the benefits of those who are full and active participants (Hoyt & Murphy, 2016; Johnson, Thompson et al., 2017).
When women of color have attempted to address discrimination in terms of policy or treatment, they are often dismissed or their feelings are minimized (Sue et al., 2007; Hoyt & Murphy, 2016; Leon, 2018). Sue et al. (2007) shared that this minimization or ignorance can lead to deepened feelings of frustration which can cause even more distrust in the environment. This aligns with research by Hoyt and Murphy (2016) who signify that women have also felt that addressing or expressing their feelings can validate the stereotypes or biases others have against them. In a study by Leon (2018), women of color feared that management and leaders may see them as confrontational, unapproachable or lazy, all of which are stereotypes that have been attached to people of color and women. This finding aligned with research by Nixon (2017) who found that these women feel that they must become adept at navigating and addressing this discrimination, because speaking up could detrimental to their advancement in their career.

In addition to having their feelings dismissed or invalidated, policies and practices within these environments can breed actions that allow inequity in access to professional development, resources, and promotional opportunities for these women (Miles, Brockman, & Naphan-Kingery, 2020; Pace, 2018; Williams & Multhaup, 2018). Williams and Multhaup (2018) concluded that lack of opportunities to develop skills may cause women of color to have skill deficits that can impact their professional careers. Miles et al. (2020) notes that this has meant feeling shut out of networks or groups that could aid them in their career professional pursuits. Whereas Pace (2018) notes that lack of access can impede their exposure to professional development opportunities that can build skills such as communication, decision making, and negotiating, all of which can be
imperative to career growth and obtaining higher level leadership roles. In these instances, women of color believe they are often susceptible to feeling as if they need to work harder to achieve and must combat stereotypical views of their race and gender if they wish to succeed (Hoyt & Murphy, 2016; Nadal, Meterko, Vardas, & Wideman, 2016; Nixon, 2017). It may also cause them to leave that particular industry or profession entirely (Yang & Carroll, 2018).

Because this problem continues to persist women of color are often required to seek out opportunities to build relationships and gain professional development opportunities on their own (Ong et al., 2017; Ong et al. 2018; Vaccaro & Camba-Kelsay, 2016; West, 2017, 2019). Through these opportunities, women of color can support each other in addressing and overcoming the barriers of traditional educational and professional settings (Ong et al., 2018; Vacarro et al., 2019). As research progresses in this area, strategies continue to emerge that support the career advancement and success of these women of color (Hartlep & Bell, 2020; McConnell, Todd, Odahl-Ruan, & Shattell, 2016; West, 2017, 2019).

**Counterspaces as a Strategy to Support Career Success and Persistence**

Although women of color have been plagued with several these challenges in across their professional careers, several strategies have emerged over the last decade focused on retaining their talent and encouraging their career success and persistence (Ong et al., 2018; Vaccaro et al., 2019). These are initiatives that have offered these women opportunities to connect, build and nurture relationships, and interact with other women of color who share similar experiences and have shown promise across the existing body of research. In this section, counterspaces that offer opportunities to build
community, gain professional development, and mentorship are explored as a promising strategy that has placed a focus on the intersectionality of identities.

Varying in definition and structure, counterspaces have been described as physical, ideological or even conceptual spaces designed to provide underrepresented populations a safe space to interact and engage freely, absent of oppressive structures (Ong et al., 2018; Vaccaro & Camba-Kelsay, 2016). These spaces are often homogenous and are inclusive of underrepresented populations such as women or people of color (Ong et al., 2018; Vaccaro & Camba-Kelsay, 2016; West, 2017, 2019). In the existing research, counterspaces have represented spaces such as conferences, professional associations or groups, or opportunities created in educational or professional settings with the intent to provide these underrepresented populations a space to interact absent of discrimination and persecution (Johnson et al., 2017). Along with these physical spaces and forums, counterspaces have also been researched as virtual environments. For women of color, when these spaces are created with a lens of intersectionality that consider their unique position as double minorities, research has found that they can have many positive impacts to an individual’s well-being as well as their academic success and career persistence (McConnell et al., 2016; Ramsey, 2019; West, 2017).

Counterspaces are unlike more mainstream professional and education environments where women of color may experience many of the barriers discussed prior such as isolation, discrimination, and lack of support (West, 2017). West (2017) noted that women of color experienced microaggressions and oppressive structures that they were unable to describe until they actively engaged with other women who shared similar experiences. This research of West (2017) aligns with the research of McConnell et al.
who found that when engaging in these more intimate environments, women of color have described feelings of safety, of empowerment and freedom to express themselves. At the same time, these women expressed that a benefit of counterspaces is the emotional support (Hartlep & Bell, 2020), and a sense of community that has contributed to their overall well-being (Davis, Wilkins-Yel, & White, 2020; McConnell et al., 2016).

In addition to supporting their well-being, counterspaces can offer opportunities for professional development. Professional development can include opportunities to develop or discover skills that are relevant to a field of study or professional practice or to uncover resources that participants were previously unacquainted with (Davis et al., 2020; Pace, 2018; West 2017, 2019). When participating in professional development opportunities within these types of spaces, women of color have shared having learned how to reframe negativity and better manage microaggressions they may encounter in mainstream professional settings (Margherio, Horner-Devine, Mizumori, & Yen, 2020; Vaccaro et al., 2017; West, 2017, 2019). Additionally, Margherio et al. (2020) and West (2019) found that in these spaces professional development can help change an individual’s perceptions of what career success looks like by learning from and alongside others who not only share a similar background, but may also come from the same industry or field of study.

Another strategy that has been explored within counterspaces as well as within more mainstream settings is mentorship. This mentorship can be informal where an individually naturally develops a relationship or personal connection with another women of color who may be more experienced in a particular area or skill (Hernandez et al.,
2017; Lancaster & Xu, 2017), or it can be a more formal mentorship where the mentoring relationships are arranged or structured (Mondisa, 2014; Sams et al., 2016). Whether it is a formal or informal mentoring, the success of this type of relationships is based on shared values, strength of relationship, and common backgrounds such as ethnicity can influence the value an individual receives from their involvement (Gasman, Nguyen, Conrad, Lundberg, & Commodore, 2016; Hernandez et al., 2017), or the climate and culture of the environment (Allen-Ramdial & Campbell, 2014; Chen, Ingram & Davis, 2014). Martinez-Carillo (2019) explains that mentorship within counterspaces can provide opportunities for women of color to gain coaching or insight on how to persist in her career. This is supported by Pace (2018) and Margherio et al. (2020) who reveal that the benefits of counterspaces has often been tied to how these relationship aid in the development of skills, attainment of credentials, or receive of advice on getting access to opportunities that further their careers.

Because women of color face several challenges and barriers that can hinder their professional success, research has found it important to create opportunities and environments where they are able to gain the support and resources they need to succeed. Opportunities to participate in counterspaces with other women of color have offered professional development (Davis et al., 2020; Pace, 2018; West 2017, 2019) and mentorship opportunities (Margherio et al., 2020; Pace, 2018) and have aided women of color in building relationships that provide benefits to them and their career pursuits. Participation in these counterspaces have helped women of color feel more equipped to handle the unique challenges they may face due to their belonging to two different underrepresented groups.
Chapter Summary

Feelings of social connectedness is a form of social capital that is identified as a factor in the success of individuals from underrepresentation populations, such as women of color. At the same time, research reveals that feelings of social connectedness can affect an individual’s learning experiences in online environments. Although instruments and scales that measure social connectedness vary across the existing body of literature, to some degree all instruments define social connectedness as an internal sense of belonging that measures an individual’s perceived distance between themselves and others in a particular group or settings. Within these instruments social connectedness is assessed through feelings of trust, comfortability, and engagement within an environment. When measured, these feelings have also been correlated to an individual’s motivation, ability to build trust, and to actively engage with others in a particular network or setting.

For women of color, in particular, social connectedness has been explored as a key factor in their professional success. Based on the intersection of their identities, women of color are often subjected to discrimination, marginalization and oppression which can create challenges in feeling socially connected in those environments. Instead, these challenges can lead to feelings of frustration, isolation, and loneliness, which can have detrimental impacts on their career persistence. However, when women of color do get the opportunity to participate in a counterspace where they are able to develop strong feelings of social connectedness with others who have similar backgrounds and experiences, these challenges can be mitigated, and they can incur a number of benefits.
Research has identified counterspaces as ideological, emotional, or physical settings where these women of color unlock opportunities to participate in professional development, to discover and share resources, and to build support networks inclusive of peers and mentors who share a similar history of discrimination. Research has shown that full engagement in these counterspaces is dependent upon those feelings of social connectedness where an individual feels fully integrated into an environment and are able to build a sense of community with other individuals in that environment. Counterspaces can also be characterized as communities of practice because they operate as a community of learners where members develop a shared understanding about who they are, what they are doing and how each of these components apply to them individually and as a collective community. When opportunities for in-person interaction are limited or not possible, virtual communities of practice (VCoPs) have been explored as an alternative. VCoPs allow for the creation of sharing and creating knowledge supported by the use of virtual collaboration tools. Within VCoPs, virtual collaboration has been shown to be most successful at impacting feelings of connectedness when it is centered on activities that build trust, allow users to establish norms for communication and role clarity, and provides opportunities to work towards common goals. When feelings of social connectedness are strong in these environments, those actively participating are better able to garner the benefits of their participation in a VCoP.
CHAPTER 3

METHOD

The Prominence of Association for Women is a membership organization for professional women of color designed to provide them access to resources and professional development. Due to discrimination and marginalization, professional women of color often encounter a lack of access to support systems that provide them opportunities for mentorship, networking, and professional development opportunities (Ong et al., 2018; Rice, 2017). Research has shown that access to communities of practice (Lave & Wenger, 1991), can mitigate some of these challenges and offer many benefits (Ong et al., 2011; Rice, 2017; West, 2016, 2019). However, the benefits individuals are able to garner from their participation is often dependent upon feelings of social connectedness (Lee & Robbins, 1995; Bolliger & Inan 2012). Additionally, when in-person opportunities to participate in these learning experiences is limited, VCoPs supported by virtual collaboration tools have been explored as an alternative (Ardichvili, 2003, 2008). As such, the purpose of this action research study was to evaluate the impact of virtual collaboration on social connectedness among a group of culturally diverse women participating in an online business strategy course through The Prominence Association for Women. It was guided by the following research questions:

1. How and to what extent does virtual collaboration impact social connectedness among a group of culturally diverse women participating in an online business strategy course?
2. How and to what extent does a group of culturally diverse women use virtual collaboration tools for activities in an online business strategy course?

3. What are the experiences of culturally diverse women participating in an online business strategy course?

**Research Design**

As a researcher, who has explored the experiences of marginalized communities at the local level, action research methods were the most viable options for this study. Action research has often been conducted by learning professionals, like myself, who are centered on improving practice or conditions within their local sphere of influence (Mertler, 2017). Researchers in this arena are typically reflective and collaborative in nature and have placed a focus on bridging the gap between theory and practice. As an Instructional Designer and a member of the organization’s leadership team who has developed curriculum and provided guidance around learning strategy for The Prominence Association for Women, I was deeply connected to the research setting and participants. As this research centered on the experiences of the members who belong to this organization, I was interested in how they interacted as a virtual community of practice and how these interactions impacted their perceptions of social connectedness. Because action research methods were utilized to explore each of these components, it allowed me to identify future ways I could influence changes in strategies or programming within the organization (Carr & Kemmis, 1986).

A more recently popularized approach to research, action research has been defined as a “systematic inquiry into one’s own practice” (Johnson as cited in Mertler,
Where traditional research methods were often geared toward solving and understanding a larger problem (Creswell, 2014), action research differs in that it sought to investigate or solve for a research problem within a specific context or localized setting (Mertler, 2017). Additionally, in action research the intent is to improve or develop one’s role as a practitioner in the field. This differs greatly from traditional research, where researchers were often focused on their contribution to the greater body of research that is grounded in theory (Eliot, 1991).

There are several benefits to action research. Mertler and Charles (2011) stated that action research is timely and often provides results immediately. Using this method has allowed researchers to address findings more and to begin to influence change within their environment more quickly. Because the innovation being implemented may impact the professional success of the women in this study, using action research methods allowed me to see the impact of this intervention more immediately. Additionally, because action research has focused on populations or environments that may have unique characteristics, issues, or barriers, researchers in this space are able to develop their skills in ways that are more tangible and relevant to them as practitioners (Mertler, 2017).

Approaching my research study from a transformative worldview (Creswell, 2014), where I was seeking to address disparities in individual experiences, a convergent parallel mixed methods approach was employed for this study. When combining this approach and worldview, research has often been guided by a qualitative framework or characteristic such as race or gender. For this study, the qualitative aspect of this research design refers to the experiences of a group of culturally diverse women participating in an
online business strategy course. While the quantitative data collected as a part of the convergent parallel design offered statistical support for the participants experiences. According to Creswell and Plano-Clark (2011) convergent parallel research designs involve both quantitative and qualitative data collection methods that are weighted equally. In this type of research design both types of data are analyzed independently, and then converged when discussing the results and findings of the study.

Research was conducted in a three-phase approach that used two presurvey and postsurvey instruments to assess feelings of social connectedness and technology use, as well as individual semi-structured interviews. The semi-structured individual interviews were conducted using a qualitative instrument, which was designed to dive more deeply into the subscales and items on the presurvey and postsurvey (Mertler, 2017). Aligning with the convergent parallel design this approach was beneficial because it allowed me to leverage the Online Student Connectedness Survey (Bolliger & Inan, 2012) and the Technology Use Survey to standardize the assessment of feelings of social connectedness, and how frequently they the participants were using different virtual collaboration tools. At the same time, semi-structured interviews helped to uncover examples of each participant’s experience engaging in the virtual environment and with their peers over the duration of the online business strategy course.

**Setting and Participants**

This action research study was conducted through The Prominence Association for Women, a national membership organization for professional women. Founded in 2012, The Prominence Association for Women was founded to provide professional coaching, mentorship, and educational resources for women of color, who were seeking
to grow their career or their business. With approximately 75 members, The Prominence Association for Women had a national footprint with chapters established in The Greater Philadelphia Area, the Washington D.C. Metropolitan Area, and a chapter in the Midwest based in Detroit.

As a part of their membership in the organization, women received many benefits including access to a suite of online self-paced courses, one-on-one coaching opportunities with the organization’s founders, and invitations to participate in specialized career and professional development programs known as Mastermind Sessions. Mastermind Sessions took place over an eight-week period at least four times per year. Each course was guided by a different theme and were designed to provide members of the organization opportunities to quickly develop and execute specific strategies for their business or to hone a specific set of skills related to growing as professionals. The courses were facilitated entirely online through a mix of weekly one to two hour workshops led by leaders of The Prominence Association for Women or industry experts, and each course involved developing and presenting a final project or presentation to the leadership team. The three women in this study who provided consent to participate were among the nine women who participated in a Mastermind Session that focused on developing a growth and customer engagement strategy for an online business. Table 3.1 provides a description of each participant aligned to their pseudonym. This includes their age, race, tenure of membership, education, location and entrepreneurship business type.

As part of their participation in the course, participants were required to develop a final presentation that outlined their strategy to market and grow revenue in their online
Table 3.1. Participant Descriptions

<table>
<thead>
<tr>
<th>Pseudonym</th>
<th>Race</th>
<th>Age</th>
<th>Membership</th>
<th>Education</th>
<th>Location (US State)</th>
<th>Business</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jordan</td>
<td>Black</td>
<td>30s</td>
<td>3 Years</td>
<td>Master Degree</td>
<td>NJ</td>
<td>Real Estate / Travel</td>
</tr>
<tr>
<td>Louisa</td>
<td>Hispanic</td>
<td>40s</td>
<td>1 Year</td>
<td>Bachelor Degree</td>
<td>NJ</td>
<td>Floral Design &amp; Sourcing</td>
</tr>
<tr>
<td>Maisie</td>
<td>Hispanic</td>
<td>50s</td>
<td>1 Year</td>
<td>Master Degree</td>
<td>PA</td>
<td>Non-Profit</td>
</tr>
</tbody>
</table>

business and to expand their network of customers. Final presentations also included specific skills a participant felt they needed to hone or cultivate to employ the strategies that they had created. For purposes of this research study, this Mastermind Session was referred to as The Prominence Association for Women’s online business strategy course.

At the beginning of the online business strategy course, an e-mail was sent to all potential participants who had enrolled in the online business strategy course to ask for their consent to participate in the study (see Appendix A). The three members consenting to participate in the study met the criteria of having at least one year of tenure in the organization. Although there were members participating in the online business strategy course who were with the Prominence Association for Women for less than a year, they were excluded from this study. This specific criteria allowed a focus to be framed around retention of these members, since retention of more tenured members had been identified as an issue on multiple organizational surveys (“Annual Report”, 2020). Because this study also explored the experiences of a group of culturally diverse women, a purposive sample (Ritchie & Lewis, 2003) was used as race/ethnicity, age, educational background,
profession, and tenure in organization were identified as factors that could influence a member’s experience in the course. As a researcher, I had limited interactions with the participants throughout the online business strategy course, however, as a member of The Prominence Association for Women’s leadership team, who had a history of leading workshops for previous Mastermind Sessions, I remained aware of the perceived power dynamics and how this could have influenced the results and findings of this study.

**Innovation**

The innovation in this study was virtual collaboration, which was defined as the use of virtual collaboration tools for activities and interaction among a group of culturally diverse women participating in the online business strategy course through The Prominence Association for Women. The use of virtual collaboration tools was chosen as the innovation for this study as research has shown that they are required for interaction in VCoPs (Endersby et al., 2009; Hafeez et al., 2019). Because the online business strategy course was viewed as a VCoP, the frequency and use of these virtual collaboration tools were aligned with participants’ feelings of socially connectedness (Bolliger & Inan, 2012; Ford & Inan, 2013). The following section outlines each of the following components as they relate to the innovation including: (1) virtual communities of practice as the theoretical framework for the innovation, (2) the virtual collaboration tools as the innovation and how they will be implemented, and lastly (3) the projects and experiences the innovation supported.

**Virtual Communities of Practice as the Theoretical Framework for the Innovation**

Because the membership of The Prominence Association for Women is dispersed across approximately seven states and all interaction occurred online this experience can
be characterized as a virtual community of practice (VCoP). This is because in this environment participants relied on technology to engage in all activities and interactions during the online business strategy course (Ardichvili et al., 2003; Ardichvili, 2008).

Research has shown that in order for an individual to maximize the benefits of participation in a VCoP, they must be fully integrated into that community. Research has shown that this integration is tied to how socially connected an individual feels to their peers and colleagues within that VCoP (McLoughlin et al., 2018; Randovan & Kristl, 2017; Sotomayer, 2014). Because the women who participated in the online business strategy course came from culturally diverse backgrounds, and had varied levels of experience with technology, they were dependent upon each other to share knowledge, and to assist each other in the development of skills to grow professionally as entrepreneurs. These factors meant it was important to frame the use of virtual collaboration tools by how they supported the activities that occurred within this VCoP. A participant’s engagement in this VCoP was also dependent upon other factors such as the motivation to participate and challenges that prevented or obstructed participation (Ardichvili, 2008). Engagement was also explored through the activities that enhanced communication and knowledge sharing within the community (Hafeez et al., 2019; Barnett et al., 2012). Each of these aspects played a role in an individual’s ability to build social capital within the group, as well as how socially connected they felt to their peers and the benefits they could garner based on their participation (Ardichvili et al., 2003; Ardichvili, 2008). Table 3.2 illustrates examples of activities that leverage can contribute to the success of VCoPs.
Table 3.2. Virtual Community of Practice Activity Examples

<table>
<thead>
<tr>
<th>Types of Activities</th>
<th>How Activities Contribute to VCoPs</th>
<th>Examples of Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motivational and Trust-Building</td>
<td>• Establishing role clarity</td>
<td>• Face to Face Orientations / Pre-meetings (Barnett et al., 2012, 2016)</td>
</tr>
<tr>
<td></td>
<td>• Establishing group norms</td>
<td>• Forming Group Norms (McLoughlin et al., 2018; Porter et al., 2011)</td>
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<td></td>
<td></td>
<td>• Technological Aptitude (Nistor et al., 2012; Porter et al., 2012)</td>
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<tr>
<td>Active Participation</td>
<td>• Building/developing relationships</td>
<td>• Social Networking (Hafeez et al., 2018; Kabilan, 2016)</td>
</tr>
<tr>
<td></td>
<td>• Enhance individual participant value</td>
<td>• Group Projects and Collaborative work (Hafeez et al., 2018; Pan et al., 2015)</td>
</tr>
<tr>
<td></td>
<td>• Enhancing collective group value</td>
<td>• Synchronous Discussion (Antoci et al., 2012; Hall et al., 2017; Kabilan, 2016)</td>
</tr>
<tr>
<td></td>
<td>• Identifies leaders</td>
<td>• Development / Identification of Common Goals (Ardichvili et al., 2003, 2008; Mather &amp; Cummings, 2014; Nistor et al., 2012)</td>
</tr>
<tr>
<td>Communication &amp; Knowledge Sharing</td>
<td>• Building/developing relationships</td>
<td>• Group Projects and Collaborative Work (Hafeez et al., 2019; McLoughlin et al., 2018; Porter et al., 2011)</td>
</tr>
<tr>
<td></td>
<td>• Enhance individual participant value</td>
<td>• Synchronous / Asynchronous Communication (Faraj et al., 2015; Radford et al., 2017)</td>
</tr>
<tr>
<td></td>
<td>• Enhancing group value</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Construction of knowledge</td>
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</tbody>
</table>

Activities that aided the women in building trust were also important to their participation as trust was essential to becoming a full member of a VCoP (Hafeez et al., 2019; Barnett et al., 2012). Activities aligning with building trust have helped to establish
role clarity in VCoPs and have assisted groups in establishing norms in the way they interact (McLoughlin et al. 2018; Porter et al., 2011). Trust was also a conduit to other activities such as active participation, communication, and knowledge sharing. Trust building activities also aided in the development of relationships and enhanced the value individuals and the collective group experienced while actively participating and constructing knowledge (Lave & Wenger, 1991).

**Virtual Collaboration Tools**

Virtual collaboration tools were defined as digital, remote, or mobile technologies that supported knowledge sharing, communication, and task completion among a group of individuals working toward a common goal in an online environment (Poppe et al., 2017). Using Wainfan and Davis’ (2004) categories of virtual collaboration tools (i.e., audio-conferencing, video-conferencing, computer-mediated), Table 3.3 describes and identifies examples of these tools. Many of the virtual collaboration tools are presented multiple times as their capabilities span across more than one category. Each of these types of virtual collaboration tools can provide support within a VCoPs.

Audio-conferencing and video-conferencing in particular have been shown to enhance communication by allowing for a more personal experience in an online environment (Kerimbajev, 2013; Luethge et al., 2016; Poppe et al., 2017). These types of tools have been proven to be strong alternatives to face-to-face communication, and have been leveraged to build trust, establish group norms, and encourage active participation. In addition to audio-conferencing and video-conferencing, tools categorized as computer mediated can also be invaluable to VCoPs (Faraj et al., 2015; Radford et al., 2017). Of
<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
<th>Examples of Implementations</th>
<th>Examples of Tools</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audio-conferencing</td>
<td>Voice communication occurring via online technology or by telephone, may include image/text sharing capabilities</td>
<td>Phone calls, conference calls or calls via the web with potential capabilities to share text and files (Luethge at al., 2016).</td>
<td>● GoToMeeting</td>
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<td></td>
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<td></td>
<td>● Free Conference Call</td>
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<td>● WebEx</td>
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<td></td>
<td></td>
<td></td>
<td>● Adobe Connect</td>
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<td></td>
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<td></td>
<td>● Google Voice</td>
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<td>● Cisco Jabber</td>
</tr>
<tr>
<td>Video-conferencing</td>
<td>Uses real time video streaming with voices of individuals, may include shared images or text</td>
<td>Group video-conferencing in dedicated rooms (Bower et al., 2013; Mason, 2013) Desktop video-conferencing applications (Luethge at al., 2016)</td>
<td>● Adobe Connect</td>
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<td></td>
<td></td>
<td></td>
<td>● Skype</td>
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<td>● Google Hangouts</td>
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<td>● Zoom Video</td>
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<td>● BlueJeans</td>
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<td></td>
<td>● CyberLink</td>
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<td></td>
<td></td>
<td></td>
<td>● WebEx</td>
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<td></td>
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<td></td>
<td>● WhatsApp</td>
</tr>
<tr>
<td>Computer-Mediated</td>
<td>Text, video, and other files received via computer without real-time voice capabilities</td>
<td>E-mail, chat-rooms/chat tools, discussion boards, text messaging (Faraj et al, 2015), instant messaging (Radford et al., 2017; Wong et al., 2011)</td>
<td>● Microsoft E-mail</td>
</tr>
<tr>
<td>Communication</td>
<td></td>
<td></td>
<td>● Google Chat</td>
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<td></td>
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<td>● G-Mail</td>
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<td></td>
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<td></td>
<td>● Google Docs</td>
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<td></td>
<td></td>
<td></td>
<td>● Facebook Messenger</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>● Skype</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>● Slack</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>● WhatsApp</td>
</tr>
</tbody>
</table>

The three types of virtual collaboration tools, computer-mediated tools were the most extensive. Within a VCoP these virtual collaboration tools support activities related to
communication, knowledge sharing and collaborative work (Hafeez et al., 2019; Mather & Cummings, 2014; McLoughlin et al., 2018). Computer mediated tools have an added benefit of being both asynchronous and synchronous providing a level of flexibility of when and how they are leveraged.

**Innovation Tasks and Activities**

Throughout the eight-week online business strategy course, members leveraged their personal laptop and desktop computers to access and use each of the virtual collaboration tools. They also used other smart devices such as cellular phones and tablets to access mobile application versions of these virtual collaboration tools. The activities and tasks these virtual collaboration tools supported aligned with one or more of the constructs of the Online Student Connectedness Survey (Bolliger & Inan, 2012): (1) community, (2) comfort and (3) interaction and collaboration. This section provides an overview of the specific virtual collaboration tools to be used in this innovation as well as an overview of how each of these tools could influence interaction within a VCoPs.

In this study, participants had access to five free virtual collaboration tools. These included: (a) Zoom, (b) Facebook Groups, (c) Facebook Messenger (d) E-mail, and (e) Google Drive. A description of each virtual collaboration tool and its general capabilities are included below:

- **Zoom (www.Zoom.us):** Web conferencing software with audio/video-conferencing, file sharing and a suite of collaboration tools designed for teams.
● Facebook Groups (www.facebook.com/groups): A private online discussion board, with file sharing and posting capabilities powered by Facebook, an online social network.

● Facebook Messenger (www.facebook.com/messenger): Facebook’s instant messaging feature that allowed a user to engage in two-way or group communication or via the Facebook Messenger Mobile app.

● E-mail: Leveraged to send asynchronous messages, schedule meetings through calendar features, and to send and receive documents and files.

● Google Drive (drive.google.com): A file storage and synchronization service developed by Google. This allows users to store files on their servers, synchronize files across devices as well as share, comment, and collaborate on documents virtually.

Table 3.4. Implementation of Virtual Collaboration Tools in the Virtual Community of Practice

<table>
<thead>
<tr>
<th>Type</th>
<th>Implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zoom</td>
<td>● Weekly Workshops</td>
</tr>
<tr>
<td>Facebook Groups</td>
<td>● Weekly Workshop Debriefs</td>
</tr>
<tr>
<td></td>
<td>● Giving / Receiving Support</td>
</tr>
<tr>
<td></td>
<td>● Sharing Knowledge/Resources</td>
</tr>
<tr>
<td>Facebook Messenger</td>
<td>● Giving / Receiving Support</td>
</tr>
<tr>
<td></td>
<td>● Sharing Knowledge/Resources</td>
</tr>
<tr>
<td></td>
<td>● Peer to Peer Feedback</td>
</tr>
<tr>
<td>E-mail</td>
<td>● Giving / Receiving Support</td>
</tr>
<tr>
<td></td>
<td>● Sharing Knowledge/Resources</td>
</tr>
<tr>
<td></td>
<td>● Peer to Peer Feedback</td>
</tr>
<tr>
<td>Google Drive</td>
<td>● Peer to Peer Feedback</td>
</tr>
</tbody>
</table>
Prior to beginning the online business strategy course an hour-long orientation workshop was held for members of The Prominence Association for Women who decided to enroll in the course. This orientation involved a 30-minute presentation that provided background on the research study, as well as provide them with a description of each tool and best practices for how it can be leveraged throughout their participation in the course. Table 3.4 outlines the specific virtual collaboration tools available to participants, and how they were implemented in the online business strategy course. The section that follows further contextualized these activities to the subscales of the Online Student Connectedness Survey.

**Community.** Community, within the context of VCoPs, embodies how integrated and emotionally connected an individual felt to others in the group. In virtual environments, the ability for an individual to feel part of a community can reduce feelings of isolation and can facilitate deep and more meaningful learning outcomes (Ardichvili, 2008; Hafeez et al., 2016). During the eight-week course, community was explored by the ways in which participants interacted, how frequently they interacted with their peers and their perceptions of the relationships they built with their peers through formal and informal communication. Formal communication occurred synchronously, at weekly workshops. These workshops were considered professional development and lasted approximately one to two hours. The workshops were at the beginning of each week (Monday or Tuesday) and took place via Zoom and were led by a member of The Prominence Association for Women’s Leadership team or by an industry leader who was identified as an expert on that week’s workshop topic. The weekly workshops were designed to provide the members exposure to relevant knowledge and
resources for entrepreneurs, as well as to help them acquire and hone skills specific to their professional development and the growth of their online business. Weekly topics included networking, social media branding, business acumen, website development, communicating with customers, and professional presence.

Outside of the weekly sessions was where informal communication occurred. Following each workshop, discussion questions were posted in a private Facebook Group comprised of the members participating in the online business strategy course. These discussion questions were designed to provide participants an opportunity to debrief the weekly sessions. Participation in the discussions was encouraged, however, participants were not required to contribute to the discussion. At the initiation of the study, the Facebook Group was also identified as a forum where individuals could go to ask questions or to share information with other participants. In addition to the Facebook Group, informal communication such as asking questions, and general discussion also occurred using Facebook Messenger and E-mail.

**Comfort.** Defined as experiencing contentment and security within their learning environment, feelings of comfort are integral to participation in any type of community of practice (Lave & Wenger, 1991). Within this research context, feelings of comfort were represented by a participant’s willingness to actively participate and engage in activities throughout the online business strategy course. Comfort also represented the ways in which participants felt safe expressing their opinions or struggles, asking questions, as well as providing feedback to peers. Their comfortability with using the various virtual collaboration tools available to them also played a role in the development of feelings of comfort. This latter piece was explained further by how frequently they engaged with the
virtual collaboration tools to share resources or get support. The development of feelings of comfort were supported by activities that leveraged Zoom, Facebook Groups, Facebook Messenger, E-mail, and Google Drive. These activities included asking questions, offering support, or connecting each other to the variety of resources in this environment.

**Interaction and collaboration.** Interaction and collaboration were important because it supported the sharing of knowledge and exchange of ideas. Research has shown that VCoPs are most successful when knowledge sharing involves all members (Ardichvili, 2008; Hafeez et al., 2019). Within the organizational context specifically, Scarborough (2003) highlights four reasons knowledge sharing might occur within a community of practice. These four ways include establishing connections with others in the group, to promote one’s own career advancement, to follow examples set forth by leaders of the group and as a source of protection against potential threats. As it related to social connectedness, Hafeez et al. (2019) found that when a VCoP included projects that required members to engage, share knowledge, and work together to meet a common goal, it could lessen feelings of isolation and could aid in them constructing their own knowledge, which is a benefit of participation.

Over the course of the eight-week online business strategy course, interaction and collaboration was aligned with peer to peer feedback on each participant’s final presentation. Beginning the second week of the intervention participants began working on components of their final presentation. To review these components and provide feedback each participant was assigned an accountability partner who was another member of the cohort. Accountability partners included all members enrolled in the
online business strategy course, even those who were not participating in the study. Accountability partners rotated each week so that participants had an opportunity to interact and collaborate with multiple peers over the eight-week period. Interaction and collaboration with these accountability partners occurred using Zoom, E-mail, Facebook Messenger, and Google Drive. These tools were used to discuss and ask questions as well as to share and edit various documents.

The final presentation was presented to the leaders of the Prominence Association for Women within the seventh and eight weeks of the online business strategy course. Each presentation was approximately 15 minutes in length, and each participant was given flexibility in how they chose to design and develop the presentation. The final presentation consisted of two parts. The first part of the presentation provided an overview of their strategic plan designed to help them grow their online business and expand their customer base. For the second part of the presentation, participants reviewed their professional development goals as it related to growing their business over the following year.

In tandem with the collaboration that occurred on the development of the final presentation, participants were also provided opportunities to collaborate in weekly workshops via Zoom. These included participation small and large group discussions as well as partnering on activities in the synchronous environment. Outside of the weekly workshops, participants also found ways to partner, connect others with business opportunities, or support the online businesses of their peers, which was classified as informal networking.
Table 3.5. *Weekly Schedule of Virtual Community of Practice Activities*

<table>
<thead>
<tr>
<th>Week</th>
<th>Activities that supported Community</th>
<th>Activities that supported Comfort</th>
<th>Activities that supported Interaction and Collaboration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>● Workshop Participation</td>
<td>● Workshop Debrief</td>
<td>● Workshop Group Activities / Discussions / Informal Networking</td>
</tr>
<tr>
<td></td>
<td>● Workshop Debrief</td>
<td>● Sharing Knowledge / Resources</td>
<td>● Informal Networking</td>
</tr>
<tr>
<td></td>
<td>● Informal Communication</td>
<td>● Asking Questions</td>
<td>● Peer to Peer Feedback</td>
</tr>
<tr>
<td>2-6</td>
<td>● Workshop Participation</td>
<td>● Workshop Debrief</td>
<td>● Workshop Group Activities / Discussions / Informal Networking</td>
</tr>
<tr>
<td></td>
<td>● Workshop Debrief</td>
<td>● Sharing Knowledge / Resources</td>
<td>● Informal Networking</td>
</tr>
<tr>
<td></td>
<td>● Informal Communication</td>
<td>● Asking Questions</td>
<td>● Peer to Peer Feedback</td>
</tr>
<tr>
<td></td>
<td></td>
<td>● Final Presentation Development</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>● Workshop Participation</td>
<td>● Sharing Knowledge / Resources</td>
<td>● Workshop Activities / Discussions / Informal Networking</td>
</tr>
<tr>
<td></td>
<td>● Workshop Debrief</td>
<td>● Asking Questions</td>
<td>● Peer to Peer Feedback</td>
</tr>
<tr>
<td></td>
<td>● Informal Communication</td>
<td>● Final Presentation Delivery</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>● Workshop Participation</td>
<td>● Sharing Knowledge / Resources</td>
<td>● Workshop Activities / Discussions / Informal Networking</td>
</tr>
<tr>
<td></td>
<td>● Workshop Debrief</td>
<td>● Asking Questions</td>
<td>● Informal Networking</td>
</tr>
<tr>
<td></td>
<td>● Informal Communication</td>
<td>● Final Presentation Delivery</td>
<td>● Peer to Peer Feedback</td>
</tr>
</tbody>
</table>

**Schedule of activities.** Table 3.5 provides a general overview of the type of activities that offered support to comfort, community and interaction/collaboration within the context of this study. It is designed to illustrate when virtual collaboration tools will have an opportunity to be leveraged.
Data Collection Methods & Data Sources

This action research study utilized a convergent parallel mixed-methods research design (Creswell, 2014) to collect data. Three data collection methods were employed to explore the research questions for this study. These data collection methods included: (a) presurvey and post versions of the Online Student Connectedness Survey (b) presurvey and postsurvey versions of the Technology Use Survey and (c) semi-structured interviews. The use of multiple data collection methods ensured data triangulation (Bloomberg & Volpe, 2015) and helped increase the credibility of the research results. Table 3.6 provided an overview of the research questions and alignment to the data sources.

Table 3.6. Research Questions and Data Source Alignment

<table>
<thead>
<tr>
<th>Research Questions</th>
<th>Data Sources</th>
</tr>
</thead>
</table>
| RQ1. How and to what extent does virtual collaboration impact social connectedness among a group of culturally diverse women participating in an online business strategy course? | ● Online Student Connectedness Survey  
● Semi-Structured Interviews |
| RQ2. How and to what extent do a group of culturally diverse women use virtual collaboration tools for activities in an online business strategy course? | ● Technology Use Survey  
● Semi-Structured Interviews |
| RQ3. What are the experiences of culturally diverse women participating in an online business strategy course? | ● Online Student Connectedness Survey  
● Technology Use Survey  
● Semi-Structured Interviews |
Data collection occurred through a three-phased approach with the Online Student Connectedness Survey administered in Phase I and Phase III, and the Technology Use Survey administered in Phase II and Phase III. Qualitative data was collected in all three phases and as such the questions on the semi-structured interview guide were modified to align with each phase.

At the beginning of Phase I, each participant was also asked to choose a pseudonym to further protect their identity in the study. Using the Random Name Generator tool at BehindtheName.com a list of five names was generated at the initiation of the presurvey for each participant. From that list, the participant was asked to pick a name that resonated with them and this was used as their pseudonym for the duration of the study.

**Presurvey/Postsurvey Instrument: Online Student Connectedness Survey**

Presurvey and postsurvey versions of the Online Student Connectedness Survey (Bolliger & Inan, 2012) were administered to all participants in this study. Mertler (2017) noted that a presurvey and postsurvey can help a researcher measure “changes that occur as the result of some sort of instructional treatment or intervention” (p. 53). With this being the case, the presurvey was administered during the first week of the eight-week course (Phase I), and the postsurvey was administered the week following the conclusion of the online business strategy course (Phase III).

For purposes of this study, social connectedness was defined as an internal sense of belonging that focused on the perceived emotional distance between one’s self and other people within their network (Lee & Robbins, 1995). Developed by Bolliger and Inan (2012), the Online Student Connectedness Survey was designed to measure feelings
of social connectedness among participants participating in online courses. The modified version of Bolliger and Inan’s (2012) survey instrument included 19 items that measured participants’ perceptions in relation to their peers in four distinct subscales (a) community (b) comfort (c) facilitation and (d) interaction and collaboration. Items were distributed across the three subscales with 8 items aligned to the comfort subscale, 6 items aligned to the community subscale, and 5 items aligned to the interaction and collaboration subscale. The survey utilized a 5-point Likert type scale for responses ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). Higher scores on this scale represented a higher level of social connectedness for a participant.

In this survey instrument, the construct of facilitation centered on an individual’s perceptions of the instructor’s presence in the course and how they facilitated the learning environment. This subscale was excluded from the version of the instrument utilized in this study. This is because weekly courses were led by various instructors who in some instances did not have a strong affiliation with the organization as they were asked to speak as industry experts. Keeping this in mind, the presurvey and postsurvey instruments were only inclusive of the questions aligned with the comfort, community, and interaction and collaboration subscales. Additionally, the presurvey and postsurvey differed in terms of verb tense, with the presurvey asking participants’ how they perceived their current experience participating in The Prominence Association for Women at the initiation of the study, and the postsurvey assessing their experiences post participation in the online business strategy course.

The original version of the Online Student Connectedness Survey was reviewed for construct validity by a panel of experts involved in distance education at three public
research universities in the United States (Bolliger & Inan, 2012). These reviewers consisted of three faculty members and one distance education administrator. Each of these panelists had extensive experience in online course management and were asked to rank a set of 48 survey questions based on their relevance to each construct, to clarify any items that were unclear, and to make recommendations on additions or exclusions. Internal reliability was also calculated for the instrument and its constructs after its initial administration, which found the instrument’s reliability to be excellent ($a = .98$). In addition to the questions concerning online connectedness, the presurvey version of the survey also included demographic questions regarding race, location, age, industry, occupation, educational achievement and tenure of membership.

**Presurvey/Postsurvey Instrument: Technology Use Survey**

Research has shown that the more engaged an individual is with virtual collaboration tools to complete activities within a VCoP, the more likely they are to feel connected and to actively engaged with members of that community (Ardichvili, 2008; Hafeez et al., 2019; Porter et al., 2011). With the setting of the online business strategy course defined as a VCoP, the presurvey and postsurvey versions of the Technology Use survey instrument (see Appendix C) was developed. The Technology Use Survey (see Appendix C) was a self-designed instrument administered to measure how frequently participants used virtual collaboration tools (Facebook Groups, Facebook Messenger, Zoom, E-mail, and Google Drive) for various activities aligned to the innovation. The survey included 15 items aligned to three subscales (a) the overall course, (b) working with accountability partners to complete their project and plan, and (c) to share information and resources with others in the group. Theses subscales categorized the
types of interactions they had in the course that supported the constructs on the Online Student Connectedness Survey. Items on this survey instrument were rated on a Likert-type scale for responses ranging from 1 (Never Used) to 5 (Used a Great Deal).

**Semi-Structured Individual Interviews**

Individual semi-structured interviews were identified as the best method to collect qualitative data regarding individual participant experiences for this research study. Because members were geographically dispersed and used a variety of virtual collaboration tools to communicate, interact and collaborate, observations of interactions in this study would have been limited and in many cases, not possible. Creswell (2014) noted that in cases where direct observation is not possible, interviews are a qualitative data collection method that allow researchers to collect information about the participants’ experiences. This method allowed me to focus on a general set of questions or topics that aligned with the Online Student Connectedness Survey and Technology Use Survey, and provide flexibility to the participants in sharing their experiences.

The semi-structured interview protocol (see Appendix D) was loosely based on a semi-structured interview protocol found in a West’s (2017) study. West’s study examined the experiences and barriers encountered by women of color participating in a professional counterspace with their industry. Like this protocol, the semi-structured interview protocol was designed to uncover their experiences within the online business strategy course. Open-ended questions were posed that addressed how participants were using technology as it aligned to the constructs in the Online Connectedness Student Survey. This was designed to provide a deeper understanding of how these constructs applied to individual participant’s experiences during the online business strategy course.
Additional questions were also asked regarding the specific activities or tools that enhanced or created barriers to their experience.

The semi-structured interview protocol was administered in three phases. Phase I interviews took place during the first week of the online business strategy course and lasted approximately 30-45 minutes. Phase I interviews began with administration of the Online Student Connectedness Survey (presurvey version). Following this, participants were asked to describe their feelings of social connectedness as members of The Prominence Association for Women, prior to their enrollment in the online business strategy course. Phase II interviews occurred during week 4 of the online business strategy course and lasted approximately 20-30 minutes and began with the administration of the Technology Use Survey. Following this, participants were asked to respond to questions based on their initial experiences (weeks 1-4) in the online business strategy course, how they were interacting with others in the course, and to identify any challenges and barriers they were encountering with examples. Phase III interviews were conducted during the final week of the online business strategy course and began with the administration the Online Student Connectedness Survey (postsurvey version) followed by the Technology Use Survey (postsurvey version). During this phase, participants were asked to frame their responses based on their experiences across the full eight-week online business strategy course. Table 3.7 illustrates how the questions found in the semi-structured interview protocol align to the research questions. Interviews were scheduled and recorded using Zoom. Participants were asked to use a webcam so that interviews happened face to face. The transcripts and audio recordings were stored on a disk drive that will be password protected.
<table>
<thead>
<tr>
<th>Research Questions</th>
<th>Sample Semi-Structured Interview Protocol Questions</th>
</tr>
</thead>
</table>
| RQ1. How and to what extent does virtual collaboration impact social connectedness among a group of culturally diverse women participating in an online business strategy course? | • What was your understanding of virtual collaboration tools prior to enrolling in this course?  
• What is your understanding of virtual collaboration and virtual collaboration tools now that you’ve completed this course?  
• Describe your experience working with other members during the eight-week course?  
• In what ways did you build rapport with other members and get to know them?  
• In what ways did you collaborate with other members?  
• Can you give me examples of activities or tasks that aided in the completion of your final presentation?  
• In what ways did you share and receive information or knowledge during the online business strategy course? |
| RQ2. How and to what extent does a group of culturally diverse women use virtual collaboration tools for activities in an online business strategy course? | • What technology (if any) did you leverage to collaborate with others on your final presentation?  
  o Can you give me some examples of how you used to “Zoom” to collaborate with others during the online business strategy course?  
  o Can you give me some examples of how you used “Facebook Messenger” to collaborate with others during the online business strategy course?  
  o Can you give me some examples of how you used “Facebook Groups” to collaborate with others during the online business strategy course?  
  o Can you give me some examples of how you used “E-mail” to collaborate with others during the online business strategy course? |
<table>
<thead>
<tr>
<th>Research Questions</th>
<th>Sample Semi-Structured Interview Protocol Questions</th>
</tr>
</thead>
</table>
| RQ2. How and to what extent does a group of culturally diverse women use virtual collaboration tools for activities in an online business strategy course? | • What technology (if any) did you leverage to collaborate with others on your final presentation?  
  - Can you give me some examples of how you used “Cisco Jabber” to collaborate with others during the online business strategy course?  
  - Can you give me some examples of how you used “The Box” to collaborate with others during the online business strategy course?  
  - Can you give me some examples of how you used “Adobe Connect” to collaborate with others during the online business strategy course?  
  - Can you give me some examples of how you used “Microsoft Outlook” to collaborate with others during the online business strategy course?  
  • What technology did you utilize to support the sharing of information?  
  - Can you give me some examples of how you used “Cisco Jabber” to share information with others during the online business strategy course?  
  - Can you give me some examples of how you used “The Box” to share information with others during the online business strategy course?  
  - Can you give me some examples of how you used “Adobe Connect” to share information with others during the online business strategy course?  
  - Can you give me some examples of how you used “Microsoft Outlook” to share information with others during the online business strategy course? |
Table 3.7. *Research Questions aligned to Semi-Structured Interview Protocol Questions* (cont.)

<table>
<thead>
<tr>
<th>Research Questions</th>
<th>Sample Semi-Structured Interview Protocol Questions</th>
</tr>
</thead>
</table>
| RQ3. What are the experiences of culturally diverse women participating in an online business strategy course? | • What attracted you to The Prominence Association for Women?  
• What skills do you want to develop through your participation in the online business strategy course?  
• In what ways do you hope to build community with other members in the online business strategy course?  
• Describe how you have previously built community in a virtual environment?  
• In what ways do you wish to collaborate and interact with other members during this online business strategy course?  
• Describe the types of activities you have found helpful when collaborating in a virtual environment?  
• Describe your experience working with other members during the online business strategy course?  
• In what was did you build rapport with other members and get to know them?  
• In what ways did you collaborate with other members?  
• Can you give me examples of activities or tasks that aided in the completion of your final presentation?  
• In what ways did you share and receive information or knowledge during the online business strategy course? |
Data Analysis

Data analysis was identified as imperative to understanding and interpreting the data collected in any research study (Creswell, 2014; Mertler, 2017). For this study, quantitative data analysis included tests for descriptive statistics, while qualitative data analysis leveraged inductive analysis (Creswell, 2017; Mertler, 2017). Table 3.8 illustrates the methods for data analysis in alignment with the research questions and the data collection sources.

Table 3.8. Research Questions, Data Sources, & Data Analysis Procedures

<table>
<thead>
<tr>
<th>Research Questions</th>
<th>Data Sources</th>
<th>Data Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>RQ1. How and to what extent does virtual collaboration impact social connectedness among a group of culturally diverse women participating in an online business strategy course?</td>
<td>• Online Student Connectedness Survey</td>
<td>• Descriptive Statistics</td>
</tr>
<tr>
<td></td>
<td>• Semi-Structured Interviews</td>
<td>• Inductive Analysis</td>
</tr>
<tr>
<td>RQ2. How and to what extent do a group of culturally diverse women use virtual collaboration tools for activities in an online business strategy course?</td>
<td>• Technology Use Survey</td>
<td>• Descriptive Statistics</td>
</tr>
<tr>
<td></td>
<td>• Semi-Structured Interviews</td>
<td>• Inductive Analysis</td>
</tr>
<tr>
<td>RQ3. What are the experiences of culturally diverse women participating in an online business strategy course?</td>
<td>• Online Student Connectedness Survey</td>
<td>• Descriptive Statistics</td>
</tr>
<tr>
<td></td>
<td>• Technology Use Survey</td>
<td>• Inductive Analysis</td>
</tr>
<tr>
<td></td>
<td>• Semi-Structured Interviews</td>
<td></td>
</tr>
</tbody>
</table>
Quantitative Data Analysis

To determine if virtual collaboration had an impact on feelings of social connectedness among culturally diverse women, quantitative data analysis included descriptive statistics. All quantitative data from the presurvey and postsurvey of the Online Student Connectedness Survey and the Technology Use Survey were compiled into a Microsoft Excel spreadsheet for further statistical analysis. As the instruments in this study were adapted from the Online Social Connected Survey (Bolliger & Inan, 2012), the multiple-choice questions aligned to the three subscales of community, comfort, and interaction and collaboration. Each subscale was subjected to analysis for descriptive statistics which included mean scores and standard deviation. These statistics enabled me to provide summary data for each participant and for the group in its entirety (Mertler, 2017). Because of the low participation quantitative data will not be subject to analysis for significance as is standard in educational research studies (Mertler, 2017).

Qualitative Data Analysis

This study utilized inductive analysis to analyze all qualitative data collected from the semi-structured interviews. Mertler (2017) noted that inductive analysis requires the researcher to follow a process of data reduction to identify meaningful themes and patterns. Unlike more structured methodologies, inductive analysis involved a detailed review of the raw data to identify which themes occurred most commonly within that specific data set, without comparing it to others (Thomas, 2006). This approach also has been shown to allow a researcher to identify important moments or experiences of the participants, before applying any type of interpretation (Fereday & Muir-Cochtrane, 2006).
Utilizing this approach, each of the nine semi-structured interviews were transcribed with verbatim transcription methods using the Temi transcription service. The transcribed data was then compiled and prepared in Microsoft Word so that the data was able to be coded and themes were identified. Following this, transcripts were uploaded to the Delve coding software, reviewed for standardization and then codes were assigned and patterns were identified as categories, themes, and an assertion that emerged from the data (Creswell, 2017).

Following this, multiple types of coding methods were employed use utilizing direct quotes from the interviews. Quantitative and qualitative findings are presented in narrative form providing a comprehensive overview of the data in Chapter 4 (Creswell, 2014). This narrative explanation was supported by tables and figures. Tables included a summary of descriptive statistics from the quantitative data analysis, as well as finalized themes and an assertion as findings and interpretations from the qualitative data. All research was also summarized into a research alignment table illustrate how the findings align to each research question.

**Procedures and Timeline**

The procedures for this research study occurred in four phases. Each phase included a specific set of activities related to the data collection and analysis process. Table 3.9 and Table 3.10 provide an overview of each of the phases, their timeframe, and data collection and analysis activities for the participants and the researcher.

**Phase I**

The initial phase of this study took place over a two-week period. During this timeframe participants were recruited, completed their consent forms and were
administered the presurvey version of the Online Social Connectedness Survey (Bolliger & Inan, 2012) as well as engaged in Phase I of the semi-structured interview protocol. In the initial weekly workshop and orientation to the online business strategy course, participants were provided an overview of the study, and viewed a brief presentation on best practices for using the virtual collaboration tools available to them was facilitated. Following this meeting, an e-mail was sent to all potential participants requesting their participation in the study and to obtain signed consent forms. Participants had three days to respond. Once all responses were received, the presurvey version of the Online Social Connectedness Survey and Phase I of the semi-structured interviews were scheduled and completed.

**Phase II**

From the second week through the seventh week of the online business strategy course, participants were engaged in course-related activities and interactions that leveraged virtual collaboration tools to complete. This included their attendance at weekly workshops, engagement in weekly discussions, and working independently along with their accountability partners to develop their final presentation. In week four of the course, Phase II of the semi-structured interview protocol in addition to the presurvey version of the Technology Use survey was administered to all participants. The semi-structured interview protocol included a series of questions about their experience up until that point in the online business strategy course, and while the Technology Use survey assessed the frequency and nature of use of the virtual collaboration tools during the initial weeks of the course.
Table 3.9. *Procedural Timeline for Participants*

<table>
<thead>
<tr>
<th>Timeframe</th>
<th>Phase I</th>
<th>Phase II</th>
<th>Phase III</th>
<th>Phase IV</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Week 1 thru Week 2</td>
<td>Week 2 through Week 7</td>
<td>Week 8</td>
<td>After Week 8</td>
</tr>
<tr>
<td>Timeframe</td>
<td>2 Weeks</td>
<td>5 Weeks</td>
<td>1 Week</td>
<td>12 Weeks</td>
</tr>
<tr>
<td>Participant’s Role</td>
<td>Complete Consent Form</td>
<td>Participate in Innovation</td>
<td>Present Final Presentation</td>
<td>Participate in member checking</td>
</tr>
<tr>
<td></td>
<td>Complete Online Social Connectedness Survey (Presurvey Version)</td>
<td>Develop Final Presentation</td>
<td>Complete Online Social Connectedness Survey (Post Survey Version)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Participate in Phase I Interview</td>
<td>Complete Technology Use Survey (Presurvey Version)</td>
<td>Complete Technology Use Survey (Post Survey Version)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Participate in Phase II Interview</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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Table 3.10. *Procedural Timeline for Researcher*

<table>
<thead>
<tr>
<th>Timeframe</th>
<th>Phase I Week 1 thru Week 2</th>
<th>Phase II Week 2 through Week 7</th>
<th>Phase III Week 8</th>
<th>Phase IV After Week 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Researcher’s Role</td>
<td>• Disseminate Study Overview, E-mail and Consent Form</td>
<td>• Implementation Innovation</td>
<td>• Administer Online Social Connectedness Survey (Postsurvey Version)</td>
<td>• Complete full data analysis for descriptive statistics of pre-test and postsurvey results</td>
</tr>
<tr>
<td></td>
<td>• Administer Online Social Connectedness Survey (Pre-Test Version)</td>
<td>• Conduct preliminary analysis of quantitative and qualitative findings</td>
<td>• Conduct Phase III Semi-Structured Interviews</td>
<td>• Complete inductive analysis of semi-structured interviews</td>
</tr>
<tr>
<td></td>
<td>• Conduct Phase III Semi-Structured Interviews</td>
<td>• Conduct Phase III Semi-Structured Interviews</td>
<td>• Conduct Member-Checking</td>
<td>• Prepare and present dissertation research to my dissertation committee</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Presentation of findings to the Prominence Association of Women leadership</td>
</tr>
</tbody>
</table>
Phase III

Phase III began week eight (the final week) of the online business strategy course. During this phase, participants presented their final presentations to the leadership of The Prominence Association for Women. Once all presentations had been completed, the Online Social Connectedness Survey (postsurvey version) and the Technology Use Survey (postsurvey version) was administered and Phase III of the semi-structured interviews was also completed.

Phase IV

After week 8 was the last phase of this study. During this phase all qualitative and quantitative data analysis was completed. This included descriptive statistics for data from the presurvey and postsurvey versions of the Online Student Connectedness Survey and the Technology Use Survey. Qualitative data from semi-structured interview was analyzed via inductive analysis. Once all data was analyzed and the preliminary findings had been written, participants had the opportunity to participate in member checking.

Rigor and Trustworthiness

As a convergent parallel mixed methods research study utilizing instruments for quantitative data collection and semi-structured interviews for qualitative data collection, it was essential to ensure rigor and trustworthiness throughout the research process. While rigor and trustworthiness are terms often contextualized to qualitative research (Mertler, 2017), rigor is often denoted as synonymous with validity in quantitative research (Creswell, 2014; Melrose, 2001). For this research study’s, qualitative methods for rigor and trustworthiness included (a) triangulation, (b) member checking, (c) rich, thick descriptions, and (d) peer debriefing (Mertler, 2017).
Triangulation

Triangulation of data was a research strategy centered on the convergence of data from multiple sources (Carter, Bryant-Lukosius, DiCenso, Blythe, & Neville, 2014; Creswell, 2014). Triangulation was achieved by ensuring that data collected from multiple methods agreed with and more importantly, did not contradict each other (Creswell, 2014). In this research study, I utilized information collected from the presurvey and postsurvey and semi-structured interviews to ensure that data aligned.

The process of ensuring data triangulation for this study involved an integrative approach (Jonsen & Jehn, 2015). Once data analysis was complete, the assertion and themes that emerged from the semi-structured interviews were aligned with the findings of the quantitative data to ensure consistency. Data collected from both had an equal weighting in the study and data collected through qualitative measures was viewed as an extension of the quantitative data (Mertler, 2017). Triangulation of the data concluded with member checking (Mays & Pope, 2000).

Member Checking

Member checking involved comparing the results as observed and presented by myself as a researcher to the actual experiences of the participants in the study (Mays & Pope, 2000). It was a multistep process that began with a presentation of the findings collected to the participants to gain their feedback (Mays & Pope, 2000; Mertler, 2017). This presentation included data collected from interviews as well as analytical memos and notes created during the data analysis process for context (Mertler, 2017). This method was identified as a strong method to ensure that the participants’ viewpoints, words or experiences were represented correctly or as intended (Shenton, 2004).
For this study, member checking qualitative data included direct quotes from participants. Once data was adjusted to remove any identifiable characteristics, and themes had been finalized through inductive analysis (Mertler, 2017), a report of their individual responses was sent via e-mailed to each woman of color who participated in the study. The reports were individualized, and participants were not privy to any information other than what they contributed to this study. Following the e-mail, 30-minute member check meetings were scheduled with each participant to review their feedback. These member check meetings were guided by a semi-structured member checking instrument designed to ensure that I had captured their experiences and words correctly, as well as asked them to identify any aspect of the data that may have been misrepresented or incorrect (Shenton, 2004). After gathering all feedback from participants, any relevant feedback was considered and added to the findings, and data that was incorrect or misrepresented was removed. Each of the three participants validated their semi-structured interview transcripts to accurately capture their interaction and offered no feedback that changed the findings of the qualitative analysis.

**Rich, Thick Descriptions**

Rich, thick descriptions of the research provided those reading the study a full scope of the intervention or phenomena being investigated (Shenton, 2004). As a researcher, it also provided a way to reflect on my own assumptions and biases as well as aid in getting a deeper interpretation of the data (Mertler, 2017). This method was used to increase the credibility of the research findings (Shenton, 2004) and promoted reflexivity (Mertler, 2017).
To ensure that the findings and interpretations were rich in context and descriptive in nature, detailed researcher notes were taken during the semi-structured interviews. This did not just include what the participants were saying, but also body language, and recurring themes in conversation. Once transcripts from interviews were transcribed, the researcher notes in conjunction with the transcripts were reviewed multiple times to ensure that I remained aware of how my personal interpretations might have influenced my interpretations of the data being collected (Mays & Pope, 2000). This review also involved documenting additional notes on the transcripts and codes in the form of analytical memos to get a better sense of the overall study (Creswell, 2014) and to further understand how my personal experiences and background with the research topic played a role in my interpretation of the findings (Mauthner & Doucet, 2003). After this reflective process, I was able to more clearly discern the true experiences or facts of the research study (Sandelowski, 2000) and was more easily able to present the data how it occurred, which contributed to the study’s credibility (Mays & Pope, 2000). Additionally, when writing the qualitative data, I decided to discuss the participant experiences in two ways. First, through the experiences of the collective group, and then a detailed account of each participant’s experience individually.

**Peer Debriefing**

Peer debriefing provided an opportunity to have another professional or colleague offer constructive insight on the data collection process (Mertler, 2017). It involved receiving unbiased feedback and being challenged by my peers on my own assumptions regarding my research study. It has been shown to enhance the credibility of data collected (Mertler, 2017) as well as provided perspective on my interpretation of the data.
(Shenton, 2004). This method was helpful in streamlining the research methods as the additional review provided alternative perspectives on the research process or themes derived from coding (Houghton, Casey, Shaw, & Murphy, 2013). Additionally, weekly sessions were scheduled with my dissertation chair to guide the data collection and analysis process. These were also immensely helpful throughout the data collection and analysis phase as they offered insight and more focused direction as the study was being carried out.

For this study, peer debriefing involved the utilization of my colleagues and dissertation chair. Throughout the research process, I utilized discussion boards created by the Doctorate of Education Program at University of South Carolina to gain feedback on my research processes and procedures. As I received feedback from my peers, I incorporated this into the research design, data collection procedures and data analysis. After data collection and analysis had ended, a draft version of my findings was e-mailed to two colleagues as well as my dissertation chair for their final review and feedback. This review was contextualized to the themes arrived at through inductive analysis (Mertler, 2017), and their feedback was used to refine themes and to fine tune my assertion (Houghton, Casey, Shaw, & Murphy, 2013).

**Plan for Sharing and Communicating Findings**

As I built my approach for sharing and communicating the findings of my action research study, there were several considerations that needed to be made. The participants in my study were comprised of woman of color who were participating in an online business strategy course. Considering the risks associated with their personal information and to ensure that I was not further marginalizing a group of women who already faced
many challenges, Creswell (2014) suggested that all data shared be coded and any identifiable information be removed. Following the compiling and coding of findings, I discussed these findings with the participants of the study. Mertler (2017) explained that involving participants in this reflective process was a way to enhance my recommendations and action plan.

The leadership team of The Prominence Association for Women, which is currently comprised of the five founding members and leadership of each of the chapters aided in the planning and design of the online business strategy course. Many of these members also served as speakers at many of the weekly professional development workshops. Because they have a vested stake in the success of the online business strategy course, a formal presentation of the findings has also been planned for this group. This formal presentation will be designed using PowerPoint and provide a high-level overview of the study and the findings. It also included time for discussion around my recommendations. Allowing the stakeholders of the organization and the online business strategy course to engage in discussion and ask questions about the findings will provide them an opportunity to reflect on the recommendations and potentially add their own insights (Mertler, 2017).

Lastly, because an underlying theme of my study deals specifically with underrepresentation of women of color across professional industries, I consider it advantageous to present my study at local or national conference (Mertler, 2017). Nationally, the Black Doctoral Network has recently placed an emphasis on supporting research centered on increasing diversity in technology (“STEM’ERs,” 2017), as such a proposal to present at their annual conference has been determined to be a future goal.
More locally, I will submit a proposal to present my research findings at the annual Pennsylvania Association of Educational and Communicative Technologies (PAECT) Technology Education Research Symposium has also been considered. Presenters accepted at this symposium, also gain the opportunity to have their work published in a local scholarly journal centered on educational technology (“PAECT Technology Education Research Symposium,” 2017).
CHAPTER 4
DATA ANALYSIS AND FINDINGS

The purpose of this action research study was to evaluate the impact of virtual collaboration on social connectedness among a group of culturally diverse women participating in an online business strategy course. This study was guided by the following research questions:

1. How and to what extent does virtual collaboration impact social connectedness among a group of culturally diverse women participating in an online business strategy course?

2. How and to what extent do a group of culturally diverse women use virtual collaboration tools for activities in an online business strategy course?

3. What are the experiences of culturally diverse women participating in an online business strategy course?

This chapter provides an overview and analysis of data collected from three participants. Utilizing a convergent parallel mixed methods research design, quantitative data was collected through two presurvey / Postsurvey tools, while qualitative data was collected through three phases of semi-structured interviews. For quantitative data, the Online Student Connectedness Survey (Bolliger & Inan, 2012) was administered to these participants at the beginning and at the conclusion of the online business strategy course to assess participant’s feelings of social connectedness. Along with this, a Technology Use Survey was administered during the fourth week and at the conclusion of the eight-
week course to assess the frequency and nature of use of virtual collaboration tools. Results from both of these instruments will be presented per participant.

For qualitative data, semi-structured interviews took place during the second week, fourth week, and the two weeks following the completion of the eight-week course. Qualitative findings provided in-depth participant descriptions, including their personal histories, and their individual and collective experiences during the study. This review of qualitative findings includes themes and assertions that were derived from inductive analysis.

**Quantitative Data Analysis**

Quantitative data in this study was collected through two instruments. The data analyzed included (a) responses to the presurvey and postsurvey version of the Online Student Connectedness Survey which measured feelings of social connectedness (Bolliger & Inan, 2012) and (b) responses to the presurvey and postsurvey versions of the Technology Use Survey. All data analyses were conducted using Microsoft Office Excel 2011. Because this study only included three participants this study tests for internal reliability were rendered invalid. Table 4.1 identifies the participants’ total scores for each survey instrument. Whereas Table 4.2 and Table 4.3 highlight descriptive statistics for the Online Student Connectedness Survey and the Technology Use Survey, respectively.

**Online Student Connectedness Survey**

The Online Student Connectedness Survey (see Appendix B) developed by Bolliger and Inan (2012), was leveraged in this study to assess feelings of social connectedness and to measure the perceived emotional distance between one’s self and their peers within The Prominence Association for Women participating in this eight-
Table 4.1. *Total Scores for Online Student Connectedness Survey and Technology Use Survey*

<table>
<thead>
<tr>
<th></th>
<th>Online Student Connectedness Survey&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Technology Use Survey&lt;sup&gt;b&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Presurvey Score</td>
<td>Total Postsurvey Score</td>
</tr>
<tr>
<td>Louisa</td>
<td>74</td>
<td>90</td>
</tr>
<tr>
<td>Maisie</td>
<td>84</td>
<td>90</td>
</tr>
<tr>
<td>Jordan</td>
<td>86</td>
<td>84</td>
</tr>
</tbody>
</table>

<sup>a</sup> The score range on the Online Student Connectedness Survey was 19-95.
<sup>b</sup> The score range on the Technology Use Survey was 15-75.

week online business strategy course. The presurvey and postsurvey Online Student Connectedness Survey assessed emotional distance in three distinct areas (a) comfort (b) community, and (c) interaction and collaboration. The survey included 19 items that were rated with a 5-point Likert-type scale ranging from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*).

**Descriptive statistics.** Table 4.2 provides descriptive statistics for the presurvey, the postsurvey, and each subscale of the Online Student Connectedness Survey. The Participants’ scores on the presurvey ranged from 2 (*Disagree*) to 5 (*Strongly Agree*) with a mean of 4.28 (*SD = 0.96*). The Participant’s scores on the postsurvey also ranged from 2 to 5 with a mean of 4.63 (*SD = 0.67*).

**Comfort subscale.** Items 1-8 on the Online Student Connectedness Survey measured comfort. Comfort measured a participant’s comfortability with using the
Table 4.2. Descriptive Statistics for Online Student Connectedness Survey

<table>
<thead>
<tr>
<th>Participant</th>
<th>Comfort Subscale</th>
<th>Community Subscale</th>
<th>Interaction and Collaboration Subscale</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pretest</td>
<td>Posttest</td>
<td>Pretest</td>
<td>Posttest</td>
</tr>
<tr>
<td></td>
<td>M(SD)</td>
<td>M(SD)</td>
<td>M(SD)</td>
<td>M(SD)</td>
</tr>
<tr>
<td>Louisa</td>
<td>4.38(0.74)</td>
<td>5.00(0.00)</td>
<td>3.33(1.21)</td>
<td>4.17(0.75)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maisie</td>
<td>4.63(0.74)</td>
<td>5.00</td>
<td>3.83(1.98)</td>
<td>4.67(0.82)</td>
</tr>
<tr>
<td></td>
<td>(0.00)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jordan</td>
<td>4.88(0.35)</td>
<td>4.63(0.52)</td>
<td>4.17(0.75)</td>
<td>4.33(0.82)</td>
</tr>
<tr>
<td></td>
<td>(0.52)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>4.63(0.65)</td>
<td>4.88(0.34)</td>
<td>3.78(1.00)</td>
<td>4.39(0.78)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

M = Mean, SD = Standard Deviation.
technologies integrated into the learning environment. For this subscale, presurvey scores ranged from 3 (Neither Agree or Disagree) to 5 (Strongly Agree) with a mean of 4.63 ($SD = 0.65$), while postsurvey scores ranged from 4 (Agree) to 5 (Strongly Agree) with a mean of 4.88 ($SD=0.34$). Of the items of this subscale, Maisie had a 2-point score increase between her presurvey (3 - Neither Agree or Disagree) and her postsurvey (5 - Strongly Agree) on Item 4 (I effectively communicated in the course). Whereas, Louisa had the same 2-point increase between her presurvey and postsurvey scores on Item 5 (I felt comfortable asking other members for help).

**Community subscale.** Items 9-14 on the Online Student Connectedness Survey measured community. Community measured how integrated and emotionally connected an individual felt to others in The Prominence Association for Women research participation group. For this subscale, presurvey scores ranged from 2 (Disagree) to 5 (Strongly Agree) with a mean of 3.78 ($SD = 1.00$), while postsurvey scores ranged from 3 (Neither Agree or Disagree) to 5 (Strongly Agree) with a mean of 4.39 ($SD = 0.78$). Of the items of this subscale, Maisie had a 2-point score increase between her presurvey (3 - Neither Agree or Disagree) and her postsurvey (5 - Strongly Agree) on Item 10 (I spent a lot of time with other members) and on Item 11 (Other members got to know me quite well). Whereas, Louisa had a 2-point score increase between her presurvey (2 - Disagree) and her postsurvey (4 - Agree) on Item 12 (I feel that other members depend on me).

**Interaction and collaboration subscale.** Items 15-19 on the Online Student Connectedness Survey measured interaction and collaboration. Interaction and collaboration measured how an individual felt about engaging and working collectively with others in The Prominence Association for Women research participation group. For
this subscale, presurvey scores ranged from 2 (Disagree) to 5 (Strongly Agree) with a mean of 4.33 (SD = 1.11), while the postsurvey scores also ranged from 2 (Disagree) to 5 (Strongly Agree) with a mean of 4.53 (SD = 0.83). There were two items on this subscale where Louisa had a 3-point score increase between her presurvey (2 - Disagree) and her postsurvey (5 - Strongly Agree) on Item 17 (I collaborate with other members) and Item 18 (I work with other members).

**Summary.** Of the three Online Student Connectedness Survey subscales, the mean score of the participants’ presurvey and postsurvey responses increased the most (+0.61) on the Community subscale that measured how integrated and emotionally connected the women felt with others in The Prominence Association for Women’s online business strategy course. The results support both the impact of virtual collaboration as well as social connectedness among this group of culturally diverse women.

**Technology Use Survey**

The Technology Use Survey (see Appendix C) was a self-designed instrument administered to measure how frequently participants used virtual collaboration tools (Facebook Groups, Facebook Messenger, Zoom, E-mail, and Google Drive) for various activities aligned to the innovation. The survey included three items that measured a participant’s frequency of virtual collaboration tool use across three subscales (a) *the overall course*, (b) *working with accountability partners to complete their project and plan*, and (c) *to share information and resources with others in the group*. The survey included 15 items that were rated on a Likert-type scale for responses ranging from 1 (Never Used) to 5 (Used a Great Deal). Table 4.3 provides descriptive statistics for the
Table 4.3. Descriptive Statistics for Technology Use Survey

<table>
<thead>
<tr>
<th>Participant</th>
<th>Overall Course Subscale</th>
<th>Working with Accountability Partner Subscale</th>
<th>Sharing Information and Resources Subscale</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pretest $M(SD)$</td>
<td>Posttest $M(SD)$</td>
<td>Pretest $M(SD)$</td>
<td>Posttest $M(SD)$</td>
</tr>
<tr>
<td>Louisa</td>
<td>4.20(1.10)</td>
<td>4.40(.87)</td>
<td>2.20(1.64)</td>
<td>4.40(0.89)</td>
</tr>
<tr>
<td>Maisie</td>
<td>4.20(1.79)</td>
<td>4.00(1.73)</td>
<td>2.40(1.95)</td>
<td>3.80(1.79)</td>
</tr>
<tr>
<td>Jordan</td>
<td>2.80(1.64)</td>
<td>3.40(1.51)</td>
<td>1.80(1.30)</td>
<td>2.80(1.79)</td>
</tr>
<tr>
<td>Total</td>
<td>3.73(1.52)</td>
<td>3.93(1.19)</td>
<td>2.13(1.55)</td>
<td>3.67(1.59)</td>
</tr>
</tbody>
</table>
Participants’ scores on the presurvey ranged from 1 (Never Used) to 5 (Used a Great Deal) with a mean of 3.09 (SD = 1.73). Participant’s scores on the postsurvey ranged from 1 (Never Used) to 5 (Used a Great Deal) with a mean of 3.56 (SD = 1.52).

**Overall course.** The overall course subscale of the Technology Use Survey (Item 1A through 1E) measured how frequently a participant was using each of the virtual collaboration tools in the course overall. For these subscale items, presurvey scores ranged from 1 (Never Used) to 5 (Used a Great Deal) with a mean of 3.73 (SD = 1.58), while the individual postsurvey scores also ranged from 1 (Never Used) to 5 (Used a Great Deal) but with a mean of 3.93 (SD = 1.19). Of the 5 virtual collaboration tools measured on the overall course subscale of Technology Use Survey, Jordan had a 2-point score increase between her presurvey (1 - Never Used) and her postsurvey (3 - Occasionally Used) score regarding her use of Facebook Messenger. Whereas Louisa had a 2-point score decrease between her presurvey (5 - Used a Great Deal) and her postsurvey (3 - Occasionally Used) score regarding her use of E-mail.

**Working with accountability partners.** The working with accountability partners subscale of the Technology Use Survey (Item 2A through 2E) measured how frequently a participant used each of the virtual collaboration tools to engage with their accountability partner for their final online business strategy course project. For these subscale items, presurvey scores ranged from 1 (Never Used) to 5 (Used a Great Deal) with a mean of 2.13 (SD = 1.55), while the postsurvey scores also ranged from 1 (Never Used) to 5 (Used a Great Deal) but with a mean of 3.67 (SD = 1.59). Of the 5 virtual collaboration tools measured on the working with accountability partners subscale of the Technology Use Survey,
Use Survey, the use of Zoom increased from 1 (Never Used) to 5 (Used a Great Deal) for all participants when working with their accountability partners to complete their final project. Two participants, Louisa and Maisie, also had increases in scores of at least 2-points between their presurvey and Postsurvey when using E-Mail as a virtual collaboration tool when working with their accountability partner on their final projects. Specifically, Louisa had a 4-point score increase between her presurvey (1 - Never Used) and her postsurvey (5 - Used a Great Deal) score regarding her use of Google Drive. Additionally, Louisa had a 3-point score increase between her presurvey (2 - Rarely Used) and postsurvey (5 - Used a Great Deal) score regarding her use of Facebook Groups. Louisa also had a 2-point score decrease between her presurvey (5 - Used a Great Deal) and postsurvey (3 - Used Occasionally) score regarding her use of Facebook Messenger.

**Sharing information and resources.** The sharing information and resources subscale of the Technology Use Survey (Item 3A through 3E) measured how frequently a participant used each of the virtual collaboration tools to share information or resources with the other online business strategy course members. For these subscale items, presurvey scores ranged from 1 (Never Used) to 5 (Used a Great Deal) with a mean of 3.40 (SD = 1.72), while the postsurvey scores also ranged from 1 (Never Used) to 5 (Used a Great Deal) but with a mean of 3.07 (SD = 1.53). Of the 5 virtual collaboration tools measured on the sharing information and resources subscale of the Technology Use Survey, Louisa had a 4-point score increase between her presurvey (1 - Never Used) and her postsurvey (5 - Used a Great Deal) score regarding her use of Google Drive. Whereas Jordan had a 2-point score decrease between her presurvey (5 - Used a Great
Deal) and her postsurvey (3 - Used Occasionally) score regarding her use of Facebook Groups.

**Summary.** Of the three Technology Use Survey subscales, the mean score of the participants' presurvey and postsurvey responses increased the most (+1.54) on the working with accountability partners subscale. This subscale measured how frequently a participant used five virtual collaboration tools (Facebook Groups, Facebook Messenger, Zoom, E-mail, and Google Drive) to engage with their accountability partner for their final online business strategy course projects. These results support an increased, purposeful, engagement among the participants overall.

**Qualitative Data Analysis**

Qualitative data in this study was collected from three phases of semi-structured interviews with each of the three participants. Each interview consisted of 10 to 15 open-ended questions (see Appendix D) that allowed participants to reflect on their experiences having participated in the online business strategy course. These reflections included providing examples of having used virtual collaboration tools available to them, their interactions with other participants, and their personal learning and skill development. Table 4.4 describes the data collected at each phase of the interview process and the total number of codes that were derived from each phase. Additionally, codes were applied multiple times with the unique code total being 224.

This study leveraged inductive analysis (Mertler, 2017) as an overarching strategy to analyze qualitative data in my study. The strategy involved first and second cycle coding methods to identify meaningful themes and patterns from the transcripts of nine semi-structured interviews with three participants (Creswell, 2017; Mertler, 2017).
Table 4.4. *Summary of Qualitative Data Sources*

<table>
<thead>
<tr>
<th>Qualitative Data Collection Sources</th>
<th>Number of Transcripts</th>
<th>Total Number of Codes Applied</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase I Interviews</td>
<td>3</td>
<td>187</td>
</tr>
<tr>
<td>Phase II Interviews</td>
<td>3</td>
<td>149</td>
</tr>
<tr>
<td>Phase III Interviews</td>
<td>3</td>
<td>258</td>
</tr>
<tr>
<td>Total</td>
<td>9</td>
<td>594</td>
</tr>
</tbody>
</table>

Having approached the data with an inductive analysis lens allowed me to provide a description of participants, their personal histories, and their experiences in this research study in their own words. All interviews were videotaped and recorded via Zoom, where in addition to hearing participant responses questions, I could observe facial expressions and body language which added an additional layer of observation when coding the transcript data. Upon completion of data collection, each of the nine interviews were transcribed using the Temi transcription service (https://www.temi.com/). Figure 4.1 is a sample of a transcript in Temi. In addition to reviewing the accuracy of the content transcribed with Temi, the reading of the transcripts also offered me an introduction, an overview, of the qualitative data I would be analyzing.

Completed transcripts were uploaded into Delve coding software (https://delvetool.com/) to begin inductive analysis. Before beginning the coding process, each transcript was labeled with the interview “Phase” and a pseudonym was selected for each participant in my study. For example, the initial interview for one participant was labeled Phase I - Louisa (see Figure 4.2). Following this, open-ended questions about each participant’s background (i.e., ethnicity, age, occupation, and education level) were added to the “Participant Information” tab in Delve.
Figure 4.1. Sample Temi transcript.

Figure 4.2. Sample transcript upload into Delve Tool.
Each transcript then went through four rounds of first cycle coding where I leveraged Structural Coding, In Vivo Coding, Process Coding, and Values Coding methods. From these codes two rounds of second cycle coding took place, using Pattern Coding and Focused Coding methods. This helped me to reflect and organize my codes to develop categories and themes (Saldana, 2016).

**First Cycle Coding**

I began the coding process with structural codes which allowed me to align the data I collected to my three research questions. Using my research questions, I created three codes, *Virtual Collaboration Impacts on Social Connectedness*, *Use of Virtual Collaboration Tools*, and *Experiences of Diverse Women*. Through this I was able to align strings of participant answers to these three codes. Figure 4.3 illustrates examples of these structural codes. Using this as a method at the onset of coding, helped me to draw connections and better compartmentalize the specific data that related to my research. For example, for my structural code, *Use of Virtual Collaboration Tools*, was helpful in identifying how participants used tools, but also specific tools that they discovered, or were introduced, to as a result of their participation in the study. For this code, in particular, subcodes were created further categorizing the data by the specific tools that were used by participants.

Following this coding method, I viewed my data through a cycle of In Vivo Coding. During the In Vivo Coding process, I identified words or short phrases in participant responses that were relevant to the purpose of my research (Saldana, 2016). These words and phrases ultimately became codes that illustrated a participant’s experience in their own words. For example, the code *Outside of the Box* was derived from the participant,
Louisa who stated, “Even if someone isn’t in the same field as me, if they are doing something I can apply, it helps me think outside of the box”.

The next iteration of first cycle coding involved Process Coding. Process Coding was imperative in highlighting specific actions or behaviors of participants (Saldana, 2016). This also helped me to highlight areas where participants experienced specific challenges and was also where participants felt they were able to hone specific skills. For example, the code Gaining Confidence, represented the expressed feeling about using a virtual collaboration tool without help or guidance of a peer. Additionally, the code Helping Other Women, was derived from the action of aiding other women in the completion of an activity or supporting them in building a specific skill related to their business.
First cycle coding ended with a round of *Values Coding*. Because of the nature of my research focusing on underrepresented women who have experienced marginalization and discrimination, it was important for me to look at the data through the *Values Coding* lens to better understand their belief systems and how these belief systems played a role in their experience with the study (Saldana, 2016). For example, the codes *Sisterhood* and *Sisters* represented the participants’ expressed feelings of bonding with other women of color, and the depth of that relationship with their peers. At the completion of first cycle coding, 224 unique codes had been induced from the data, with 49 of those codes being applied more than once.

**Second Cycle Coding**

To conduct two rounds of second cycle coding, I exported the 224 codes from the Delve Tool into Microsoft Excel to employ second cycle coding methods. This allowed me to gain a more holistic view of the codes and sort these codes by how often they had been applied to the interview transcripts. This process began with *Pattern Coding*, in which I began to identify meaningful relationships among the codes. Because *Pattern Coding* is best used to identify and explain what is happening among the codes, the codes were first analyzed and combined to create new codes with stronger meaning (Saldana, 2016). For example, the codes *Getting to know each other, no longer alone*, and *building relationships* were combined to create a new code *forming bonds*. Because of the large volume of first cycle codes generated, I felt it necessary to consolidate into new codes for more effective processing of my data. At this stage, the 224 initial codes were consolidated into 59 new codes which were then analyzed to create categories.
To begin the creation of categories, *Focus Coding* methods were applied to the data. This involved looking at the codes I deemed as most significant and relevant to the study and identifying how they could be further combined in a way that was relevant and important to my research (Saldana, 2012). For example, Figure 4.4 illustrates how the codes centering on *communication*, *collaboration* and *supporting each other* appeared frequently in the data with some overlap. Based on the context of the data and what this meant for my research, these codes were used to create the category, *Collaborative Work and Support*. 8 categories were created during this process which encompassed 59 codes.

![Table of codes and categories](Figure 4.4. Codes to categories example)

This list was edited several times, as I wanted to be accurate in creating categories that depicted what the codes were saying about the participants' experience in my research. This process was supported further by peer debriefing, where I shared my
categories with my dissertation chair and classmates to get her unbiased perspectives on my thought process and the specific categories that were emerging.

Once categories had been finalized, the next step was identifying themes. My initial step in identifying themes was to align the categories to my research participant experiences. Similar to the Structural Coding method employed during the first cycle of coding, this aided me greatly helped me to further conceptualize how to explain the experiences of participants in my study. Through addition conversations with my dissertation chair and peers within my cohort I was able to identify words and phrases that encompassed how those categories related to my research and how they accurately expressed the experiences of my participants.

For example, categories that centered on individual/group identity, personal challenges and skill development, felt very grounded in the participant’s positive and negative experiences being entrepreneurs from underrepresented backgrounds. Repeating this process with all categories, I concluded with three themes (a) Entrepreneurial Progression, (b) Richness of Synchronous Interaction and (c) Interdependence Fosters Authentic Connections. The final outcome of the inductive analysis process also fueled the creation of an assertion: Participants' perceived technology can support the development of strong intimate relationships when entrepreneurs who are women share similar backgrounds, common goals, and past experiences. Table 4.5 aligns my data to categories, themes, and an assertion this research study.
Table 4.5. *Inductive Analysis Outcomes from Data to Assertion*

<table>
<thead>
<tr>
<th>Assertion</th>
<th>Theme</th>
<th>Category</th>
<th>Example Evidence</th>
</tr>
</thead>
</table>
| Participants' perceived technology can support the development of strong   | 1. Entrepreneurial          | • Individual / Group Identity                                             | “I hadn't heard of a membership organization that was specifically for entrepreneurs who are women of color. Um, you know, that was founded by a black woman. And that was really fostering this environment of collaboration and learning and growing together.”  
                         | Progression                  | • Self-efficacy and Activities for Skill Development                    | ~ Jordan                                                                                 |
| intimate relationships when entrepreneurs who are women share similar    |                              | • Participation Impacts and Outcomes                                      | “I wanted to learn from scratch. I don’t know anything about branding, I don’t know how to pitch. These are words I never even thought to use before joining the organization.”  
                         |                              |                                                                          | ~ Maisie                                                                                 |
| backgrounds, common goals, and past experiences.                           |                              |                                                                          | “I’m not tech savvy, but I feel like by being in the course it is helping me get at the core of my business, and what I want it to be. It’s allowing me to have a different kind of confidence and self-assurance.”  
<pre><code>                     |                              |                                                                          | ~ Louisa                                                                                 |
</code></pre>
<table>
<thead>
<tr>
<th>Assertion</th>
<th>Theme</th>
<th>Category</th>
<th>Example Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participants' perceived technology can support the development of strong</td>
<td>2. Richness of Synchronous</td>
<td>• Synchronous Interaction</td>
<td>“I really do like the Zoom and I think it's just because even though it's virtual, it allows this type of communication and it also allows you to share that desktop. So, if you're working on something and you need to share it, then share it so I can see what you're talking about and maybe we can figure that out.” ~ Louisa</td>
</tr>
<tr>
<td>intimate relationships when entrepreneurs who are women share similar</td>
<td>Interaction</td>
<td>• Asynchronous Interaction</td>
<td></td>
</tr>
<tr>
<td>backgrounds, common goals, and past experiences.</td>
<td></td>
<td></td>
<td>“In the Facebook Group itself I would post questions or concerns if there was anything going on that I wasn't too sure of or I would help them out and encourage them.” ~ Maisie</td>
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<td></td>
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</tbody>
</table>
Table 4.5. *Inductive Analysis Outcomes from Data to Assertion* (cont.)

<table>
<thead>
<tr>
<th>Assertion</th>
<th>Theme</th>
<th>Category</th>
<th>Example Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participants' perceived technology can support the development of strong</td>
<td>3. Interdependence</td>
<td>Bonding and Community Building</td>
<td>“We have like a sisterhood, an environment and a safe place for black and Brown women to come together, um, and feel like our voices can be heard, our frustrations can be heard.” ~ Jordan</td>
</tr>
<tr>
<td>intimate relationships when entrepreneurs who are women share similar</td>
<td>Fosters Authentic Connections</td>
<td>Perceived Challenges and Barriers</td>
<td>“I kind of felt a little out of place, you know, because I'm a little bit older. They were like really young and I just didn't know how to fit in the way that I really wanted to.” ~ Maisie</td>
</tr>
<tr>
<td>backgrounds, common goals, and past experiences.</td>
<td></td>
<td>Collaborative Work and Support</td>
<td>“We had accountability partners in the beginning, but that didn't really function well...so what happened towards the end is that we would naturally gravitate to whoever they are or whoever they saw was quick to post.” ~ Louisa</td>
</tr>
</tbody>
</table>


Qualitative Accuracy

To ensure further accuracy of the data, and that each participant’s experience was captured honestly and not misinterpreted, all participants were contacted to engage in member checking. An e-mail was sent to each participant with a word document attachment that reviewed the themes of the studies, and the quotes from their semi-structured interviews that were leveraged to align with those categories. Participants were asked to review this data to see if the intent of what they said was accurately captured. Participants were given, a week to review the transcription of their quotes, before engaging in an individual 30-minute conference call via Zoom where I reviewed each of the quotes and offered additional insight about how I arrived at the study. The analytical memos that were added to participants’ quotes during second cycle coding were helpful in this process, as they helped me to provide further context around the final themes.

While the participants did not identify any misrepresentation in the quotes that were included in the study, both Maisie and Louisa wanted to ensure it was conveyed that their experiences in the online business strategy course had a positive impact on their development as entrepreneurs and that they held their relationships with the other women who participated in high regard. Maisie made an additional note that although she felt at times course topics didn’t relate to her as a nonprofit leader, upon further reflection she felt that the other women aided her in drawing parallels between their experience and hers. Mertler (2017) suggests that member checking can help to further shape qualitative findings. As such, it was important to take these additional perspectives into account as I wrote the qualitative findings, and developed rich, thick, and deep descriptions of each individual participant’s experience.
Qualitative Findings

Thorough analysis of the qualitative data resulted in the assertion that participants perceived that technology can support the development of strong intimate relationships when entrepreneurs who are women share similar backgrounds, common goals, and past experiences. This assertion aligns with the existing body of research on VCoPs that has revealed technology supported activities are essential to an individual’s social connectedness and subsequently their engagement with other members of that community (Ardichvili, 2008; Hafeez et al., 2019; McLoughlin et al., 2018). At the same time, this assertion supports aligns with research on counterspaces and women of color, that has identified social connectedness as an indicator in one’s ability to develop the relationships in these settings, and as such garner benefits from those relationships that are built with others in that space (Johnson et al., 2017; Ong et al., 2018; West, 2019). Furthermore, this research in conjunction with the findings of this study was illustrated through the following three subsumed themes (a) Entrepreneurial Progression, (b) Richness of Synchronous Interaction and (c) Interdependence fosters Authentic Connections. In the following section these three themes are discussed holistically as well as how they apply to each participant’s individual experience.

**Theme 1: Entrepreneurial progression.** Entrepreneurial progression centered on how an individual’s personal history, background and experience as women of color who are professionals impacted their participation in the online business strategy course. This includes aspects of the course that impacted skill development and learning outcomes. Research suggested that entrepreneurs who are women often experience discrimination and marginalization in ways that can leave them feeling isolated or
unsupported in their careers (Block et al., 2019; Callahan et al., 2015; Wilkins-Yel et al., 2019). Research has also shown that being provided opportunities to connect with others who share similar background and professional experiences can lessen feelings of isolation (Ong et al., 2018; Vaccaro et al., 2019), and can help them to develop and hone skills necessary to succeed in their careers (Johnson et al., 2017; Ong et al., 2018; West, 2017, 2019). In this section, the theme entrepreneurial progression will be discussed as it was created from the following categories (a) individual / group identity, (b) activities for skill development, and (c) participation impact and outcomes.

**Individual / group identity.** For the purposes of this study, individual / group identity related to how an individual’s identity as a woman of color shaped their views as an entrepreneur and how these views were shared among the group of participants in the study. Crenshaw’s (1990) research asserts that women of color have unique experiences based on the intersection of two marginalized identities. Similarly, research by West (2017, 2019) found that women of color feel that they are not provided the same opportunities as their male counterparts. Both of these aspects can influence how women of color view their roles as entrepreneurs and this was evident in the experiences of participants in this study.

All participants in the study highlighted that they were attracted to becoming members of The Prominence Association for Women because its focus is about women of color who are entrepreneurs. Participants’ described that as women of color, they had not encountered organizations like The Prominence Association for Women that allowed them to connect with likeminded business owners who share similar backgrounds. For example, Jordan in her Phase I interview stated,
I hadn't heard of a membership organization that was specifically for entrepreneurs who are women of color. Um, you know, that was founded by a black woman. And that was really fostering this environment of collaboration and learning and growing together.

This statement was similar to one by Louisa, who highlighted in her Phase I interview the unique experience of being a woman of color who is an entrepreneur. Louisa said, “I feel like we are entrepreneurs who are women of color, right? We don't have the same conversations as other ladies or not all women. Cause we know that we are the exception to the rule”.

In addition, participants described that prior to joining The Prominence Association for Women they experienced feelings of loneliness, feeling that as entrepreneurs they did not have the support they wanted or needed. This included knowledge of resources, people getting encouragement and feeling like other self-defined characteristics (i.e. age, gender, or race) may have created additional barriers for them. This echoes the research of Ong, Smith, and Ko (2018) and by Johnson et al. (2017) who held that women of color often feel their identities can create barriers for them in more mainstream professional and educational environments. For example, Maisie shared in her Phase I interview that “As a woman over the age of 50 starting an online business for the first time was an intimidating feeling.” This aligned with sentiments experienced by Louisa in her Phase III interview who reflected on her experience in the course. Louisa shared,
I learned that I wasn't alone. Being an entrepreneur is a very lonely journey…but then I was able to find another chick out there that has the same struggle. It doesn't have to be the same business, but she's living her own same lonely race.

These similar experiences across the three participants support the assertion that women of color who are entrepreneurs may have unique experiences based on their dual identities (Martinez-Carillo, 2019; Ong et al., 2018; West, 2017).

**Activities for skill development.** Ramsey (2019) asserted that women of color who are professionals lack self confidence in a way that can hinder their skill development and subsequently their career persistence and advancement. In this study, Louisa and Maisie expressed a lack of self confidence in many different skills that they felt to also be essential in their roles as entrepreneurs. Both participants commented that these feelings changed after engagement in the online business strategy course and that they became more confident and capable in their skills as a result of their participation. For example, during her Phase I interview Louisa said, “I know for sure that I needed the business skills. I can make a floral arrangement, but my left side of the brain doesn’t work well. I need help from the ladies who know how to do that part.”

These sentiments were also expressed by Maisie who stated in her Phase I interview, “I wanted to learn from scratch. I don’t know anything about branding, I don’t know how to pitch. These are words I never even thought to use before joining the organization.” Participants also felt skill development would be beneficial in growing their business’, gaining funding or sponsorship, generating awareness, or expanding their products or services. As time moved forward each of the three participants began to express feelings of appreciation, confidence, and competence as it related to their ability
to perform a wide variety of skills and tasks. These included feeling self-assured and confident when completing specific tasks on their own, gaining comfortability performing tasks alone where they would have previously needed support. For example, Louisa stated in her Phase II interview,

I’m not tech savvy, but I feel like by being in the course it is helping me get at the core of my business, and what I want it to be. It’s allowing me to have a different kind of confidence and self-assurance.

Whereas, Jordan stated in her Phase III interview, “I had tried using these [content] creation tools on my own. [After the course] I was like, wow, I can’t believe I did that compared to what I was creating before.” By the conclusion of the study, all three participants indicated that they felt they had honed their skills to a level where they were able to complete a variety of tasks on their own without assistance. This included skills related to social media, creating marketing and branding content, and identifying ways to partner with other women. Louisa highlighted in her Phase III interview, “Before I was intimidated, I’m going to be real honest. I always had someone in my family on speed dial for help. Now it’s like I can walk on my own, and I am a lot more tech savvy.”

In addition to building confidence, Williams and Multhaup (2018) revealed that because women of color are not offered as many opportunities to develop as professionals when compared to their counterparts, they may have skill deficits that can impact their careers or businesses. However, when these women belong to communities or counterspaces where they are given exposure to other women of color, they are presented with more opportunities to develop skills and strategies necessary to succeed in their careers (Davis et al., 2020; West, 2019). Research cites these as communication and
critical thinking skills (Margherio et al., 2020; Vaccaro & Camba-Kelsay, 2017), as well as strategies to navigate discrimination they face professional or academic environments (Martinez-Carillo, 2019; West, 2017), and other leadership. Each of these aspects will be highlighted in the individual experiences of the participants in this study.

However, for communications skills, specifically, participants commented that over the duration of the online business strategy course they were able to increase their capability to communicate with their peers and pitch their business to potential investors or donors. For example, Louisa stated in her Phase II interview, “I actually feel like I'm developing better communication skills because before I just didn't have the words [to explain] or I didn't have everything in order in my brain.” This supports the research that women of color are often not provided the opportunities to hone these skills that may impact their success and are often required to seek out these opportunities on their own.

**Participation impacts and outcomes.** Over the course of the study participants discussed how engaging in the online business strategy course impacted them personally or led to specific outcomes for them professionally. Ong, Smith et al. (2018) identified that one of the benefits of counterspaces is learning from others who have a shared background in ways that help an individual overcome barriers they may encounter or advisement of strategies they can employ as they navigate their careers. This section highlights the specific participant impacts and outcomes presented over the course of the study. These included having knowledge and resources beneficial to their business growth and creating a stronger network. Jordan noted in her Phase III interview that participation had been helpful in finding tools to streamline her business. She stated,
I've learned different technologies. I've learned how to use Canva. I've streamlined my business to make it work for me and automate it. I don't always apply everything to my businesses because everything isn't always for my businesses, but I keep those tools and those skills for future opportunities or just as something that I've learned that I can now help someone else with.

At the same time, Maisie noted in her Phase III interview that through the help and coaching she received from other members in the course, she was able to learn about the different types of customer relationships she needed to build for her business. Maisie stated,

Building the relationships that I did with everybody and how we helped each other. There was times that I would feel stuck and didn't know what to do and they really reached out to me and helped me out a lot. Um, that meant a lot. It still means a great deal to me and you know, learning about the different relationships, the customer relationships.

This aligns with research that has shown, peer mentorship and encouragement can aid in the development of specific skills for women of color (Margherio et al., 2020; Martinez-Carillo, 2019; Ong et al., 2018). In addition to having gained more knowledge, there were several resources highlighted by the participants that they believed contributed to their future business success. During her Phase II interview, Jordan provided the following example of resources she was able to share that impacted others:

I was able to go through a Goldman and Sachs program. And so, while I was there, I realized that my business wasn't necessarily eligible for the course, but I immediately got home and did a Facebook live video where I shared everything
from that with the group. A few people each applied, and one member actually got accepted to the course.

Additionally, all women noted that creating a stronger network with other small business owners was one of the largest benefits of participation in The Prominence Association for Women. These sentiments were expressed most clearly by Louisa in her Phase I interview, who stated,

I have like a collection of ladies that I know and that I know that I'm going to help a small business, you know, we rise by lifting others and if you're already in my pack then I'm going to go to you before I go to someone else.

These sentiments along with the other expressed here support the research that when women of color have access to counterspaces, they are able to gain support and mentorship that they may not have in mainstream forums.

**Theme 2: Richness of synchronous interaction.** Throughout the study participants experiences were explored based on how interactions occurred within a VCoP (Ardichvili, 2008; Hafeez et al., 2019). Research has shown that in VCoPs, interactions can happen using a multitude of technological tools (Mather & Cummings, 2014; McLoughlin et al., 2018). These tools categorized as virtual collaboration tools help to support various types of interactions including communication between members, sharing of information, and task completion (Hung & Yen, 2010; Poppe et al., 2017). VCoPs are also leveraged when opportunities to meet “in-person” are limited or impossible (Chayko, 2014). Research has shown the nature and use of these various technologies can have an impact on the value a member may glean from their participation in the VCoP (Altebarmkian & Alterman, 2018; Barnett et al., 2016; Porter...
et al., 2011). In this section, the participants’ uses of virtual collaboration tools are discussed through the lens regarding each category of (a) synchronous interaction and (b) asynchronous interaction.

**Synchronous interaction.** Muszynska et al. (2015) revealed that when used properly synchronous interaction can break down barriers in communication among a diverse population. This assertion from previous research (Muszynka et al., 2015) aligned the experiences of participants in this study. In this study, participants engaged in synchronous interaction through the use of various technologies such as Zoom, Facebook Messenger, and through telephone communication including text messaging and telephone calls. However, each of these tools served different purposes for participants based on their individual needs at the time. For example, when discussing Zoom participants highlighted a number of key benefits. These benefits included the opportunity for face-to-face communication which they felt was more personable as well as capabilities such as screen and desktop sharing which allowed for other participants to provide feedback on their work. Participants also noted using Zoom’s breakout rooms for having small group discussions, which were viewed as an opportunity to share their work throughout the course. For example, Jordan and Louisa both stated,

<table>
<thead>
<tr>
<th>Jordan</th>
<th>Phase II Interview</th>
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<tbody>
<tr>
<td></td>
<td>I like Zoom because, just for right now in the state that we're in, it does allow you to be able to connect with people and have that, you know, face to face even though it's not in person. So, it makes it a little bit more personable and then depending on what it is that whatever type of program or what you're trying to do, the features</td>
</tr>
</tbody>
</table>
that Zoom has with like the breakout rooms and different things like that, it's pretty cool.

Louisa Phase II Interview

I really do like the Zoom and I think it's just because even though it's virtual, it allows this type of communication and it also allows you to share that desktop. So, if you're working on something and you need to share it, then share it so I can see what you're talking about and maybe we can figure that out.

In addition to face to face communication and desktop sharing capabilities, participants also discussed the value of Zoom breakout rooms utilized during the weekly workshops. Breakout rooms were leveraged by facilitators to split all participants into smaller groups for the purposes of small group discussion and activities. This supports research that using these synchronous tools with a collaborative purpose can often create more value in VCoP (Wang & Huang, 2018; McLoughlin et al., 2018). This value was expressed by Louisa who stated that breakout rooms offered an opportunity for others to ask her questions or express opinions that she may not have felt comfortable asking in the larger group. Louisa stated in her Phase II interview,

I wonder if it has to do with maybe people being intimidated, like let's say maybe a person who's more of an introvert may feel intimidated because I'm an extrovert and I got all these questions, the breakout room helped. …

That portion of Zoom, while people kind of hate it because the workshop leader is gone, and you have to do the work. But if I'm by myself with someone who I feel is at a plateau, then I will start asking questions like ‘So what do you think is a way’ and I'm just reiterating things we’ve learned in the course. For example, I
think we helped Maisie to think of services that she would have or her different programs. Like how was it that she would get funding and or different things.

When it came to Facebook Messenger, participants leveraged these tools outside of the weekly workshops to communicate with their accountability partners, or to get help or assistance from their peers. Maisie stated in her Phase III interview, “Most of the time the conversation with my accountability partner started through messenger, and then moved to text messages or phone calls.” Louisa expressed that Facebook Messenger was a tool that aided the group in coaching each other, especially as it related to final presentations. She stated, “So, [redacted] was the first to give her presentation. So, I got all of us on a call on messenger to ask questions. I was like ‘yo, give us the low-down. Like what are they expecting?’

In conjunction with Facebook Messenger, text messaging and phone calls were also used as a form of support and coaching throughout the study. For example, Maisie expressed a moment where she was trying to find funding for her business while completing her final presentation and how she was able to leverage text messaging to do so. She stated in her Phase II interview, “I texted my accountability partner to ask her about different funds that I wasn't aware about and she helped me with that, and we text back and forth a little bit.”

Louisa mentioned in her Phase III interview that other members texted her to review their presentations stating that “I had [redacted] text me and say, can you look at this and tell me how you feel? Do you think that I covered all my bases?” At the same time, Jordan mentioned in her Phase II interview that she leveraged text messages and Facebook Messenger to share opportunities or resources with specific individuals. Jordan
said, “If I find a more specific opportunity that’s maybe not for everyone, you know, I'll send it to specific people through [Facebook] Messenger or text message.”

Lastly, in her Phase II interview Maisie also highlighted how phone calls were a way to share her experiences with others in the group and provide encouragement. Maisie stated,

You know, I try not to call them all the time, but I will if I need something. I may not know a lot about entrepreneurship. I do have a lot of experience in other things. And for example, I was talking to [redacted] and she said she wasn't sure what she wanted to do with her business because you know she's into crafts and everything. I said to her, I don't know about you, but I know that you are excellent when it comes to doing t-shirts. So, I just let them know, you know, this is what I see. This is the passion that I see.

Asynchronous interactions. Asynchronous interactions are those that happened intermittently and were not instantaneous. Virtual collaboration tools that supported these interactions were most commonly categorized as computer-mediated and have been found helpful in assisting with a number of tasks such as document editing and feedback, formal or informal discussions, or sharing resources (Antoci et al., 2012; Porter et al., 2011). In this study, the primary virtual collaboration tool that supported asynchronous interaction was Facebook Groups. Other technologies such as E-mail, Instagram, and Canva were leveraged sparingly.

Aligning with research on computer mediated communication such as discussion board and information sharing tools (Antoci et al., 2012; Kabilan, 2016), Facebook
Groups functioned as a repository of questions and where resources were shared over the
duration of the eight week online business strategy course, with participants leveraging
that space to engage their peers when they needed assistance, when they had news or
information to share, or to keep up to date on content they may have missed in one of the
weekly workshops. For example, Louisa noted in her Phase III interview,

I didn't follow through on one of my assignments one week. But the group
was still popping, and everybody was still discussing what they had to do.
So, it kind of made me feel like, I'm going to catch up with what I needed.

Participants also used Facebook Groups as a medium to ask questions that they felt
would be beneficial to others or to provide encouragement. For example, in Maisie said in
her Phase III interview, “In the Facebook Group itself I would post questions or concerns
if there was anything going on that I wasn't too sure of or I would help them out and
encourage them.” However, encouragement expanded outside of Facebook Groups to
individual Facebook feeds or pages as well as other social media platforms such as
Instagram. In another example provided during Maisie’s Phase II interview, she
highlighted one of the major ways she was able to support Louisa,

I try to encourage her with different things that she does, so what I do is I'll like
the different things she post posts, like if she has a post where she’s trying to
promote something, I'll put it on my page and then it goes onto my Facebook page
just to help get the word out to people that I know that she may not have access
to.

Jordan echoed these sentiments in her Phase III interview providing an example,

“I did a Facebook Live where I literally went to like a training and then straight from the
training, and I wanted share the information with the other ones. I posted the live in the Facebook Group.” Along with this Maisie mentioned Instagram as a way to provide encouragement to her peers when she stated, “For example, if one of the girls put a nice post up, I'll make sure that I like it and comment on it.”

Although E-mail was a tool available to them, all participants noted that E-mail was rarely used throughout the duration of the study. In instances where it was used, it served as a way to share information or to ask a question. Maisie emphasized this point during her Phase II interview when she stated, “I may E-mail one of the ladies some information that I may have to ask them if, if this is something good for me to use.”

**Theme 3: Interdependence fosters authentic connections.** When an individual has a strong sense of connection to others in a specific organization or group, it can positively impact his or her personal and professional success (Virick & Greer, 2012; Yoon et al., 2012). During the eight-week online business strategy course, participants cited many opportunities they were given to build strong and authentic bonds and relationships that they believed contributed to their success in the course, but also aided them in furthering their businesses. This theme focused on the behaviors and activities that fostered these connections and how those behaviors and activities created feelings of interdependence among participants. This theme is discussed through the following categories (a) bonding and community building, (b) perceived challenges and barriers, and (c) collaborative work and support.

*Bonding and community building.* On several occasions throughout the study, participants likened the relationships they were building with their peers to those they had with family. Bonding and community building referred to how
participants described the individual bonds and group bonds that were created as a result of being members of this VCoP. Davis et al. (2020) asserted that feeling like a member of the community and having strong bonds with others in a group can aid the learning process, because individuals feel less anxious, or defensive, and may be open to trying new things. This aligns with research on social connectedness which asserts that in order for someone to feel like they belong to a group the must feel some type of connected, affiliation, and companionship to others (Framke et al., 2019; Irgens, 2019). All of these feelings were expressed when participants discussed the bonds they were building with others in their cohort. These bonds were initially described during the first weeks of the online business strategy course, as evidenced by all participants in both Phase I and Phase II interviews. For example, Maisie who highlighted in her Phase I interview, “So we’re like a little family and none of us have met, but I feel very comfortable with them.” Louisa in her Phase I interview and Jordan in her Phase II interview shared similar feelings when they said,

Louisa  
*Phase I Interview*  
I have like a collection of ladies that I know and that I know that I'm going to help a small business and we were in that same mindset, that same like, you know, we rise by lifting others and if you're already in my pack then I'm going to go to you before I go to someone else. Like a sisterhood. Like it really is.

Jordan  
*Phase II Interview*  
We have like a sisterhood, an environment and a safe place for black and Brown women to come together, um, and feel like our
voices can be heard, our frustrations can be heard. Um, and we can, you know, team up and work together and give each other support through hard times or you know.

At the conclusion of the study, participants highlighted how they felt these bonds contributed to their overall experience in the online business strategy course. In their Phase III interviews, all three participants provided examples,

Louisa  I was able to find another chick out there that is doing the same struggle. Not this doesn't have to be the same business, but she's living her own same lonely race. It's almost like we're racing in place by ourselves and then I'm like, I see you over there. You know what I mean? Like I'm not alone in this thing.

Maisie  The best part was building the relationships that I did with everybody and how we helped each other. There was times that I would feel stuck and didn't know what to do and they really reached out to me and helped me out a lot. Um, that meant a lot. It still means a great deal to me.

Jordan  Helping the other women. I've always just been like someone that's really big on like wanting to give back and help. So I just really love that sense of collaboration and how, you know, like I said, I'll go to a class and share it with the, the pink room, um, or the alumni room and it, it feels really good when like someone takes that bit of information and you know, uses it and can benefit from it.
Perceived challenges and barriers. Women of color who are professionals have experienced discrimination over the course of their academic and professional lives, and this has impacted how they acculturate into new VCoPs (Ardichvili, 2008; Barnett et al., 2012). These issues are often marked by feelings of doubt, apprehension and judgement which can prevent them from fully receiving the benefits that participation in such communities provide (Nistor et al., 2012). The participants in this study had several preconceived ideas about what participation in the online business strategy course would be like, that presented themselves with challenges and barriers as they orientated themselves to the course. However, these perceptions changed through the relationships that were built with other members.

At the beginning of the study, each participant provided examples of challenges or barriers that initially caused them issues with acclimating to the group. In her Phase I interview Maisie provided the example, “I kind of felt a little out of place, you know, because I'm a little bit older. They were like really young and I just didn't know how to fit in the way that I really wanted to.” In her Phase III interview, Maisie noted that even when she could not relate, she still felt included. She stated, “Even when I couldn’t relate, they always tried to include me, and I would give my different perspective and things like that.”

In reflecting on the entirety of her experience in the online business strategy course, Jordan provided a similar example. In her Phase III interview, Jordan stated, I used to feel a little awkward or intimidated slightly because I'm like the youngest. So, I don't really think that there was ever any negative feedback. It was just like me, like, what am I'm going to bring to these [other] women...and I feel
like in all that we do within Prominence Association for Women, it always feels like in a two way street, which is good because it never feels like you're giving more than, than you're receiving or you know, any type of way where it can feel like it's not even. Um, so you know, just been really fulfilling.

Alongside age, Louisa and Maisie also expressed a lack of comfort with technology as a barrier they felt would impact their experiences. In her Phase I interview Louisa stated,

I mean I'm old, I'm 40, so we started with the MySpace, right. And then, you know, regular Instagram. But I am not a great tweeter. I have an account, but I'm like, I don't, I don't, I get lost. I can't do that.

At the same time, Maisie in her Phase I interview stated “It's a big thing trying to use the Facebook thing and Instagram. And I'm still not there but I'm working on it.”

At the conclusion of the study Louisa noted that being in the course helped her to become less intimidated when using technology, and that she leveraged the other women as resources. When asked about her comfort with technology in her Phase III interview she stated,

I do feel like I'm not intimidated. I don't know everything. I'm not an expert, but I'm going to do it. Come on, let's go. With the ladies, we can figure it out. We can read out, pull up the YouTube quick, show me how to do this, you know, but before it would stop me. Got it. I'm not going under that now I'm like, come on, let's, let's get our feet wet.

**Collaborative work and mutual support.** VCoPs can aid in building relationships between individuals who are novices and those that are more experts (Ardichvili, 2008).
These relationships help both types of individuals build knowledge, acquire skills, and uncover skills resources that can only be garnered by active participation in that community (Lave & Wenger, 1991). McLoughlin et al. (2018) asserted when working and learning together in an online environment, these relationships can assist in meeting common and individual goals as well as help minimize feelings of isolation. In this study, participants cited examples of how working collaboratively and mutually supporting each other in ways that contributed to their individual success and the greater success of the group. These examples included feeling comfortable enough to ask and answer questions, participating in brainstorming sessions, and more formally working with their accountability partners and peers to share resources and complete their final projects.

When providing examples of supporting other women, Jordan said she believed the intent of the organization was to create a forum where questions could be asked without apprehension. Jordan stated in her Phase III interview, “I feel the whole point of the organization was to create an environment where women did feel comfortable asking questions and starting businesses...”

Examples to support this were also provided by Maisie and Louisa. Maisie stated in her Phase II interview that she liked to use Facebook Groups as a way to check in and ask questions of the group. Maisie said, “Every now and then I'll just go on there and I'll say, hey beauties, just checking on you, making sure everybody's good or if I have like any questions or anything like that.” Whereas, Louisa mentioned that when others asked her questions it gave them an opportunity to engage in some brainstorming. Louisa stated in her Phase II interview, “Sometimes you know, they ask a question and then I switched
around. Oh, that really could work for me as well. That kind of feels like it's almost like bouncing ideas.”

When it came to sharing ideas and feedback, Jordan stated at the beginning of the study that this would be more situational, and that she preferred to brainstorm with an individual, versus the whole group. In her Phase I interview she stated, “Discussing ideas for me is more situational. I'm more inclined to maybe speak directly with people who can help that idea flourish a little better than just kind of throwing it into, you know, a room.”

As the study progressed this sharing of ideas became more targeted through work with their accountability partners. Although the primary function of accountability partners was to provide feedback on their final presentation for the course, Louisa noted that the original intent of those relationships changed throughout the course. In her Phase III interview, Louisa stated,

We had accountability partners in the beginning, but that didn't really function well...so what happened towards the end is that we would naturally gravitate to whoever they are or whoever they saw was quick to post. I had [redacted] text me about the [final] presentation and say, can you look at this and tell me how you feel? Do you think that I covered all my bases?

When Jordan was asked about her experience with her accountability partners, she stated in her Phase III interview,

We thought about how we can team up so that both of our businesses are getting, um, you know, the, the looks and the, the potential clients and leads that we're
looking to gain. Three of us ended up doing a panel on Facebook live for our businesses.

Over the course of the study all three participants expressed how working with the other women had benefited them and their business. However, in her Phase III interview, Jordan was to provide specific examples of how this occurred. She stated,

I've learned a lot from just like the other women...I've learned how to be more of a financial steward and, take control of your finances to, how to deal with difficult people and you know, how to work on, um, dealing with that difficult customer, and still providing like the utmost customer service...I've learned different technologies.

These outcomes support the examples described by others, and showcased how through collaborative work and mutual support, each of the participants were able to develop skills and garner resources from their participation in the online business strategy course.

**Participant Experiences**

Over the course of this study each of the three participants had individual experiences that impacted how they perceived their personal growth and skill development as entrepreneurs, the ways in which they interacted with others, and the authentic connections and bonds they were able to build as a result of their participation. These individual experiences were, in part, a result of their personal histories, which were closely tied to characteristics such as business type, race, and age. These characteristics coupled with their experiences within the study influenced the ways in which each individual perceived that technology can support the development of strong intimate
relationships; the assertion that emerged from the qualitative analysis. In this section, descriptions of each participant and their experiences throughout this study are provided as they align with the quantitative findings as well as the themes derived from qualitative data. All participants are identified as women of color, with use the pronouns she / her / hers being utilized in the writing.

**Maisie (She/Her/Hers)**

Maisie was a Hispanic woman in her mid-50s from New Jersey. She had been a member of The Prominence Association for Women for one year prior to beginning the online business strategy course. She had worked as an Operations Manager in the Utility Industry for over 20 years, holding a bachelor’s degree in Organizational Leadership from Thomas Jefferson University. In 2015, she founded a scholarship fund for high school seniors from underrepresented backgrounds who were interested in healthcare related degrees. The scholarship fund was created in memory of her daughter, who died tragically in 2014, but had aspirations of being a doctor. Since the creation of the scholarship program, Maisie has been able to provide financial assistance to over twenty students and seniors from her local area and expressed an interest in expanding the fund to other areas of New Jersey. As a scholarship fund, most of her donations came through her website, and her scholarship foundation’s Facebook Page.

Maisie learned about The Prominence Association for Women, when she attended an event where the organization’s founder was a keynote speaker. She shared in her Phase I interview,

So, I went to a conference and that's where I met [redacted]. I felt very comfortable speaking with her and even though I know that this particular group,
is really, most of the members are anywhere between, I'm going to say 25 and 40 and I am 15 years older than that. She said that they’ll be very helpful and very patient with me. I just had no idea what to expect because all of this was just brand spanking new to me.

Over the course of the study, Maisie’s experience was marked with examples of where she was able to develop skills and capabilities that would support the growth of her scholarship fund. She also shared how her success was dependent upon using a variety of technological tools to support and provide feedback to her peers. By the end of the study, Maisie’s experiences left her feeling as if she was a better communicator and that she had a built a network to help support her in growing her business.

As a woman who had never been an entrepreneur, Maisie cited her age and lack of business knowledge as perceived barriers before becoming a member of The Prominence Association for Women. She also noted hesitance in enrolling in the online business strategy course as a result of a lack of confidence in using virtual collaboration tools and social media tools such as Facebook and Instagram. In her Phase I interview she stated,

I didn't know anything, didn't know branding, I didn't know how to pitch. I mean, these are words that I never even thought to use, you know, like a pitch to me would have been pitching a baseball or something like. So, I needed help with the web and the business and how to speak to people in reference to donations and sponsors. Like I didn't even know the difference between sponsorship and donations.
While she believed this lack of knowledge would hinder her, she still had a willingness to want to learn from the other women in the group. Maisie stated in her Phase I interview,

I call the girls my millennial girls because their way of thinking, it's different than my way of thinking. One of the other reasons that I wanted to be in the group was because the ladies were younger than me and they were giving me ideas and different perspectives on things that I would never have thought of… What I wanted to do was actually glean off of them and just learn their, what their perspectives are in their particular businesses. And then even though mine's is different, it's a nonprofit, there's some similarities that I can pick up on.

As Maisie progressed through the online business strategy course, these perceived barriers began to materialize in a variety of ways. She cited several examples where she felt uncomfortable, frustrated, or unprepared based on her lack of knowledge or capability to perform a task or participate in discussion in comparison to her peers. In her Phase II interview, Maisie provided an example of where her frustration with planning her business’s website almost caused her to drop out of the course. She shared,

Like I got really frustrated with the foundation, with the, and I almost started to cry, but I promise you I didn't. I was just so frustrated because I don't know how to do a website. I don't know how to build one. And so, everybody was talking and I'm just looking at them and I felt alone, and I felt like, oh my gosh, I can't do this. So, when [the facilitator] came to me [to describe my website] and I said to her, I can't do this. I'm just not going to do this. And they asked me to go back into the group. I didn't go back into the group because I was so upset.
However, in instances like this, where her frustration was high, Maisie noted the support of the other women motivated her continuing. In the same Phase II interview, she continued,

Then the next day, Jenny messages me this long message and she just made my day. She's like, I know she says, this is personal for you. This is not something that you're selling. This is personal, just don't give up. And you know that that's, that means a lot. And of course, I cried when I read it.

In another example, Maisie discussed how being the only member leading a nonprofit organization also presented its share of challenges. She felt she lacked the business experiences that other women in the cohort had. In her Phase III interview, she shared,

Everyone else was a for profit, so it was very different. They would speak about certain things about profit, how to make money, how to, how to go online doing different packages, things like that. I really, I mean I studied, I listened to them and I try to relate, but I, I couldn't always relate. So, a lot of times during that time I would just stay quiet, which would concern my sisters because they would be like, why isn’t [Maisie] saying anything? Cause she's always talking, which is because I just couldn't, I couldn't relate on now I was going to do what I'm doing based on what they were doing.

For Maisie, these relationships and connections grew through her interactions with the other women over the course of the study. She highlighted Facebook, Text Messaging, Zoom, and E-mail as tools that supported these correspondences. Each of these virtual collaboration tools were leveraged with distinct purposes, including
providing encouragement, or mutual support. For example, in her Phase III interview, Maisie highlighted how Facebook Groups became a place for her to ask questions and to encourage the other women. She stated, “In the [Facebook] group itself I would post questions or concerns if there was anything going on that I wasn't too sure of or I would help them out and encourage them. We like encourage each other a lot.”

In another example, Maisie also stated that e-mail was leveraged to work with her accountability partners and to share resources or information. In her Phase III interview, when asked about how she worked with her accountability patterns, she stated,

It's funny because I've really built a rapport with Louisa, [redacted] and [redacted]. We would just talk about our own, our own projects and then I would, if there was ideas that would come up or they would say things and I had ideas for their businesses, then they will let me know.

When asked how these interactions took place, she continued with an example in regard to text messaging, “I texted [redacted] to ask her about different funds that I wasn't aware about and she helped me with that.”

As time moved forward, Maisie expressed enjoying the opportunities to connect and interact with the other women, describing their relationship as a sisterhood. She shared in her Phase II interview,

I always tell my husband on Mondays don't bother me cause I got to talk to my sisters. This is going on and it's really how to regrow a lot in situations that I never thought I would. So, I'm very grateful.

Along with the relationships she was able to build with other women and the collaborative work with her accountability partners, Maisie also cited skill development
as one of the benefits of her participation in the course. In her Phase II interview when asked about what she was learning from her participation she stated,

I believe that I'm learning how to express myself better. Facebook and Instagram and things like that. Like I can always express myself, but when I get to a situation that I do not know a lot about, I get kind of quiet and I just listen and now I'm chiming in more.

Moreover, Maisie also stated that she was able to gain more comfort with technology and using tools as a result of her interactions with other women. In referencing Zoom, Maisie highlighted features such as the share desktop tool that she was unaware of how to use before. Expanding on the example she provided in her initial interview, she emphasized on what she had learned in her Phase III interview,

I told you before I don't know anything on how to create a website. And I'm not ashamed to say that I don't know anything. Okay. So, I met with [redacted] and she said share your screen and then I couldn't share my desktop for whatever reason. Now it's funny because now I see a button here that says share and I can do it.

The authentic connections Maisie was able to develop with her peers were mutually beneficial, not only supporting skill development, but also transcending the learning environment. Over the course of the study, she noted supporting other businesses by sharing on her Facebook page and Instagram, as well as becoming a customer of their services. When asked in her Phase III interview about the most rewarding part of her participation in the online business strategy course she stated,
Building the relationships that I did with everybody and how we helped each other. There was times that I would feel stuck and didn't know what to do and they really reached out to me and helped me out a lot. Um, that meant a lot. It still means a great deal to me.

**Jordan**

Jordan was a Black woman in her early-30s from Pennsylvania. For the past five years, Jordan has been a Technical Training Analyst for a supply chain management company. She is the owner of two online businesses, an international travel agency and a real estate agency. As one of her 2020 goals, Jordan wanted to expand the customer base for her real estate agency by developing an online curriculum for first-time home buyers on financial literacy and the home purchasing process.

Of the three participants in the study, Jordan was the most tenured member of The Prominence Association for Women, having belonged to the organization for over 4 years. She was instrumental expanding the footprint of the organization to the Pennsylvania and Delaware areas, serving in the role of President of the Philadelphia Chapter of the organization. When asked what attracted her to becoming a member in The Prominence Association for Women, she stated in her Phase I interview,

I've always had an entrepreneurial heart. So, the fact that, you know, she had an organization that was specifically for women who were entrepreneurs. You know, it didn't matter what your business type was. It didn't matter where you were in your business. It could be an idea business. And so, you know, it was just, it was just a really great organization that I felt like I had to be a part of and not only just join it,
but I wanted to help spread the awareness and, you know, the presence of it all.

Along with wanting to belong, Jordan also highlighted her experience in The Prominence Association for Women and what it meant to her as a woman of color. In her Phase II interview, she stated, “As Black and Brown minority women, we sometimes get overlooked. And so, the whole point of the organization was to create an environment where women did feel comfortable asking questions and starting businesses.”

Although she had participated in other courses through The Prominence Association for Women in the past, the goal of expansion for her online real estate business is what led her to be participating in this particular online business strategy course. During the online business strategy course, Jordan was less engaged than her peers. However, the majority of her engagement occurred through Facebook and Zoom. Through utilization of these virtual collaboration tools she was able to share her own knowledge and resources in ways that would benefit and encourage the personal and professional growth of her peers.

Initially, Jordan perceived her age as a challenge when it came to relating to her peers, but a benefit when trying to learn new technologies. She provided the following examples,

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<th>Phase I Interview</th>
<th>I'm 31. I'm millennial we're use of technology. Um, I think also to me personally, um, I've always just been blessed to kind of learn systems and things really fast. Even like in my career, I learned early on that I kind of had the fake it till I made it a little bit. So sometimes, you know, I might've said</th>
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I've knew how to use the system and I really didn't, but I learned it in like a week. Um, so I think that some of it maybe just be by nature, but then also too, just my willingness to learn, my body of work that I'm in. And then also too, I really think the Prominence Association for Women, you know, there was a lot of things that I learned about in different tools that I don't think I would have known if it wasn't for The Prominence Association for Women.

Phase III Interview

I used to feel like a little awkward or intimidated slightly because I'm, I'm like the youngest or at one point I was, I don't think I am anymore cause I'm getting older and there's younger people joining so I don't think I'm the baby anymore. It was just like me questioning, like, what do I have and I'm going to bring to these women and blah, blah, blah. And I feel like in all that we do within the Prominence Association for Women, it always feels like a two way street, which is good because it never feels like you're giving more than, than you're receiving or you know, any type of way where it can feel like it's not even.

Although at one point she questioned what she could bring to the organization, this did not deter Jordan from sharing resources and providing feedback to the other women participating during the online business strategy course. Resources included sharing skill development and partnership opportunities outside of the online business
strategy course, providing feedback on their business ideas and helping them build their final presentations. Jordan shared an example in her Phase II interview,

I was able to go through a Goldman and Sachs program. And so, while I was there, I realized that my business wasn't necessarily eligible for the course, but I immediately got home and did a Facebook live video where I shared everything from that with the group. A few people applied and one member actually got accepted to the course.

In addition to using Facebook Live to share information, Jordan mentioned using Facebook Groups and Facebook Messenger to help the other women network and to connect them with those partnership opportunities. She stated in her Phase III interview,

A few weeks ago, or it might've been a month ago now, someone reached out to me and they wanted to put on a wellness event and I was like, okay, I have some great people, but she, you know, told me that she really wanted to stick to wellness. So, I went to the Facebook Group to target specific women. Like one woman [in her cohort] has like, um, you know, like a workout type thing where, you know, she's, she offers workout services, counseling services. Um, Louisa, she sells flowers. I kinda just like reached out to them directly to let them know, “Hey, this event is happening. Um, would you be interested?”

At the start of this study, Jordan identified on the Technology Use Survey using Facebook Groups regularly (Use a great deal). At the conclusion of this study Jordon cited a preference for using Zoom instead. In particular when providing feedback and sharing ideas with her peers, she cited a preference for Zoom because she perceived it to
offer a more personable experience due to the tool’s video capabilities. In her Phase III interview, she stated,

I like the [Zoom] cause just for right now in the state that we're in, it does allow you to be able to connect with people and have that, um, you know, face to face even though it's not in person. So, it makes it a little bit more personable and then depending on what it is that whatever type of [workshop] you're trying to do, the features that Zoom has with like the breakout rooms and different things like that are pretty cool.

Although she expressed appreciation for the opportunities to connect with the other women, as mentioned prior, Jordan was less engaged in using the virtual collaboration tools than her peers. This finding was further supported by sentiments expressed in all three phases of her interviews where Jordan cited the COVID-19 pandemic as a possible cause. In her Phase I interview she stated, “Unfortunately in light of this whole COVID, we were losing the social interaction piece of the course.” And then in her Phase III interview, Jordan stated, “I think that if it were not for this COVID, we probably would be spending more time together.”

While she believed that COVID-19 may have impacted the amount of social interaction and time spent with the other women in her cohort, she still noted several positive outcomes based on her participation in the online business strategy course. She shared that she was able to enhance her communication skills, knowledge of business processes, and learning new technologies to help her automate her business. In reflecting on her learning in her Phase III interview, she stated,
I've learned a lot from just like the other women...I've learned how to be more of a financial steward and, take control of your finances to, how to deal with difficult people and you know, how to work on, um, dealing with that difficult customer, and still providing like the utmost customer service. I've learned different technologies. I've learned how to use Canva. I've streamlined my business to make it work for me and automate it. I don't always apply everything to my businesses because everything isn't always for my businesses, but I keep those tools and those skills for future opportunities or just as something that I've learned that I can now help someone else with.

These sentiments were echoed further when she was asked to reflect on the most rewarding part of her experience. In response, she highlighted helping the other women and getting to witness their successes as a benefit. She stated in her Phase III interview, I've always just been like someone that's really big on like wanting to give back and help. So, I just really love that sense of collaboration and how, you know, like I said, I'll go to a class and share it with the Facebook Group. It feels really good when like someone takes that bit of information and you know, uses it and can benefit from it. Or you know, when you see the women, just like engaging in having their own organic conversations and partnering up because you know, in that conversation they may have decided, Hey, well what you do, you know, pairs well with what I do

**Louisa (She / Her / Hers)**

Louisa was a Hispanic woman in her early 40s from Southern New Jersey. She had been a member of The Prominence Association for Women for one and a half years
prior to beginning the online business strategy course. Although Louisa had received a bachelor’s degree in Information Technology, she spent most of her career working as an office manager for an independent plumbing company. In addition to this job role, she had worked as an assistant at a local floral shop since her teenage years. Louisa stated that one of her major career goals since her 20’s had always been to open her own floral business. In 2018, Louisa decided to leave her job at the plumbing company and lease a brick and mortar space to start her own floral and event planning company with a mission of sourcing flowers from local farmers with underrepresented backgrounds and as a way to minimize waste.

When researching online courses and programs for entrepreneurs, she discovered The Prominence Association for Women. In her Phase I Interview, she stated,

When I went into her website, because it was, I didn't, I didn't have a whole lot of funds, but I knew that I had to invest in me. She was one that was like, um, she had a very high program with personal coaching and a lot of different courses. I know for sure that I needed the business and part of it, like I needed to have a structure for the business end part of it. Because I can make a [floral] arrangement all day long, but there are so much other things that goes with owning the flower shop that I was like, “Oh, I need an education on that.”

In addition to the brick and mortar store, in 2019, Louisa planned to expand her business into an online flower delivery and subscription service, which is what led her to take part in the online business strategy course. Throughout the online business strategy course, Louisa was the most engaged participant. During the study, Louisa expressed a strong desire to learn from the other women and their experiences as entrepreneurs who
are women of color. At the same time, Louisa provided examples of how she embraced various virtual collaboration tools to support and encourage her peers throughout the duration of the study. These behaviors led her to create intimate relationships with individuals as well as feeling a part of the collective cohort participating in the online business strategy course.

At the initiation of the study, Louisa stated that she was comfortable engaging with other women based on her past interactions within The Prominence Association for Women. Up until that point of her membership, she noted already feeling as if she had learned a lot from the women. In her Phase I interview she shared,

Even though we're not all in the same field, you'd be surprised if something that helps someone else, like the way that they say it, if it helps me or if I can apply it to myself, then it kinda like, it helps me to think outside the box from a different angle.

In examples provided by Louisa, she believed this engagement was most successful because of virtual collaboration tools such as Zoom, Facebook Groups, Facebook Messenger, and Text Messaging. With Zoom, specifically, Louisa expressed,

I feel that when we collaborate more when we're on the [Zoom] call. Okay. Like when there is information shared, when there is comradery, like you know what I mean? Like we're like encouraging each other. I like to ask them questions. That's sometimes because it is not my field. There are some things that kinda stick out at me, like easy peasy, do this, do that, do this, do that. Or I asked a lot of questions to kind of let them get to their own because it might be my idea, but they don't want to do that.
Within the Zoom tool, Louisa cited the breakout room and screen share features as one that supported providing feedback and group problem solving. She provided the following examples in her Phase II interview,

I really do like the Zoom and I think it's just because even though it's virtual, it allows this type of communication and it also allows you to share that desktop. So, if you're working on something and you need to share it, then share it so I can see what you're talking about and maybe we can figure that out.

The [breakout room] portion of Zoom, while people kind of hate it because the teacher is gone and you have to do the work, I feel like that's the, that's the feeling behind it. Cause even I feel that sometimes like, Oh God, now I'll be by myself. But if I'm by myself with someone who I feel like is at a plateau, then I will start those questions. For example, we helped with Maisie, just different, um, services that she would have or her different programs. Like how was it that she would get funding and or different things that she'd had. So, we asked some questions surrounding that…

Along with the interactions she had via Zoom, she also shared that Facebook Groups and Google Drives became ways to post messages and stay abreast of information that might be important or helpful. She also saw Facebook Groups as a vessel for keeping her on track for the completion of assignments and activities as she was able to be more in tune to how her peers were progressing through the course. She stated in her Phase III interview,
I didn't follow through on one of my assignments one week. But the group was still popping, and everybody was still discussing what they had to do. So, it kind of made me feel like, I'm going to catch up with what I needed.

When collaborating with her accountability partners on her final project, Louisa said that Facebook Messenger and Text Messaging were tools that were used interchangeably. While she admitted that finding times to meet often posed issues with the accountability partner relationship, Facebook Messenger and Text messaging made interactions a little easier. In her Phase II interview, she provided an example,

Say there is accountability partner that is more senior that can kind of like hold that hand of the junior partner, then it'll be more like, it would be more on my responsibility to reach out and kind of do those things and maybe foster that type of relationship. But when you only have that for one week and if they're sick or if their life is crazy, then we didn't meet. You know, we're kind of kind of like rushing to touch base before [our next meeting]. Like, hey girl, this is what I did. Unless you've had that accountability partner before, then you kind of have like a messenger or a text message. Some people will even say, this is my phone number, text me.

Additionally, she used Google Drive and E-mail to share her own presentation, but also to upload resources she received. Louisa stated in her Phase III interview, “[redacted] sent me some things for my presentation and when I downloaded them, I put them into the Google Drive, so I always have them.”

Although Louisa did not perceive learning or collaborating with the other women as a barrier for her at the beginning of the study, she did express some apprehensions
about using technology. However, she felt her confidence and capabilities in technology was enhanced as a result of her participation in the online business strategy course. In her Phase II and Phase III interviews she expressed,

**Phase II Interview**

I’m not tech savvy, but I feel like by being in the course it is helping me get at the core of my business, and what I want it to be. It’s allowing me to have a different kind of confidence and self-assurance.

**Phase III Interview**

Before I was intimidated, I’m going to be real honest. I always had someone in my family on speed dial for help. Now it’s like I can walk on my own, and I am a lot more tech savvy.

Louisa credited her ability to gain confidence in using the various virtual collaboration tools to the class size and structure. In her Phase III interview, she made the following statements,

I feel like the class, this course was digestible, if I can explain, you know what I mean? Cause it wasn't like you had to do everything at once. You gotta do it in pieces each week.

I think that the class size being small allowed for a more intimate experience. Because it's not like there's 30 of us. And you know how sometimes you're in class of your peers and you don't wanna be the first one to asks questions or things like that. But our leader would be quick to say “Where y'all at?”.
Louisa also noted that being able to collaboratively build skills helped her to create stronger connections with others taking the online business strategy course. She likened these connections to familial bonds. She stated in her Phase II interview,

I have not met Maisie at all and [redacted] is like my aunt. That's my auntie. If I'm honest, I can see my own struggles in her. I am not her age, but I feel that we are in the same lane. We're earning social media with learning different things of the business background. So, it kinda helps us bond.

At the end of the online business strategy course, Louisa stated that her ability to finish the course was the most rewarding part. However, she noted that she would not have been able to complete the course without the other women or the leaders of the organization. In summarizing her learning in the course during her Phase III interview she stated,

This 8 weeks was like a quick course but I feel like I'm going to have to stay in The Prestigious Society, because it was better than I expected. For me, I learned that I learned that I wasn't alone. Being an entrepreneur is a very lonely journey…but then I was able to find another chick out there that has the same struggle. It doesn't have to be the same business, but she's living her own same lonely race. It's almost like we're racing in place by ourselves and then I'm like, I see you over there. You know what I mean? Like I'm not alone in this thing.

Chapter Summary

This chapter shared quantitative and qualitative data collected from two presurvey and postsurvey instruments and a three phase semi-structured interview protocol. The quantitative data presented showcased responses to the presurvey and postsurvey versions
of the Online Student Connectedness Survey, which measured feelings of social
connectedness at the beginning (Phase I interviews) and at the end of the study (Phase III
interviews). Quantitative data also included responses to the presurvey and postsurvey
version of the Technology Use Survey which measured frequency and nature of use of
virtual collaboration tools at the midpoint (Phase II interviews) and at the end of the
study (Phase III interviews).

Qualitative data was collected through the semi-structured interview protocol that
was administered at each phase of the study. Qualitative findings of the data aligned with
three themes a) Entrepreneurial Progression, b) Richness of Synchronous
Communication, and c) Interdependence fosters Authentic Connections. 11 categories
were aligned across these three themes, all of which supported the assertion. Participants
perceived technology can support the development of strong intimate relationships when
entrepreneurs who are women share similar backgrounds, common goals, and past
experiences.

The increased mean scores of participant responses on the community subscale of
the Online Student Connectedness Survey supported the qualitative data where
participants expressed that strong connections and relationships were able to be built
through the use of various virtual collaboration tools. The Technology Use Survey
assessed the influence of five virtual collaboration tools (Facebook Groups, Facebook
Messenger, Zoom, E-mail, and Google Drive) for these women of color participants to
utilize with their accountability partner for their final online business strategy course
projects. These results from both the quantitative and qualitative findings support an
increased, purposeful, engagement among the participants when using these virtual
collaboration tools; with all three study participants having identified personal growth in their comfort using at least one of these tools throughout the eight-week online business strategy course.
CHAPTER 5
DISCUSSION, IMPLICATIONS, & LIMITATIONS

The purpose of the research study was designed to gain a deeper understanding of how and the extent to which virtual collaboration impacted social connectedness among a group of culturally diverse women participating in an online business strategy course offered through the Prominence Association for Women. Data collection and analysis was guided by two presurvey and postsurvey quantitative instruments, The Online Student Connectedness Survey (Bolliger & Inan, 2012), and the self-designed Technology Use survey as well as participants’ responses to a three phase semi-structured interview protocol. In this chapter I will interpret the findings of these instruments as it aligns with the body of research on this topic. The section is structured to provide (a) discussion of the findings, (b) implications and recommendations for future research, and (c) limitations of this research study.

Research Question 1: How, and to What Extent Does Virtual Collaboration Impact Social Connectedness Among Culturally Diverse Women Participating in an Online Business Strategy Course?

This research question was designed to explore how designated collaborative activities may have impacted the feelings of social connectedness among the participants within this online business strategy course. Research has shown that feelings of social connectedness are essential to belonging in a VCoP and to garnering the benefits of participation in that group (Ardichvili, 2008; Radovan & Kristl, 2017; Sotomayer, 2014).
In an online environment, where opportunities for in-person interaction are limited, opportunities to participate in collaborative activities has been shown to positively impact feelings of social connectedness and in turn aid individuals in becoming full members of the VCoP (Ardichvili, 2008; Hafeez et al., 2019). Quantitative and quantitative findings in this study indicated that virtual collaboration had a positive impact on feelings of social connectedness. This section draws alignment between the collaborative activities that participants found to be beneficial and the impacts of these feelings based on the aligned with the quantitative finding of the three Online Student Connectedness Survey subscales (a) comfort, (b) community, and (c) interaction and collaboration (Bolliger & Inan, 2012).

**Activities that impacted feelings of comfort.** Comfortability with the learning environment and the ability to feel safe have been identified as key to feelings of social connectedness among learners (McConnell et al., 2016; West 2017). Research has shown that when an individual feels more comfortable in their environment, they are not only more willing to participate and communicate with others in the group (Hartlep & Bell, 2020), but also more willing to ask for help or assistance when they encounter a challenge or barrier. Activities centered on comfort are those where an individual is encouraged to participate without consequence, and or fear of judgement (Bolliger & Inan, 2012). Over the course of the study two of three participants saw a positive increase in feelings of comfort on the Online Student Connectedness Survey specifically in the areas of effectively communicating with others (Item 4 – *I effectively communicated in the course*) as well as well as asking others for help throughout the course (Item 5 – *I felt comfortable asking other members for help*). Additionally, as was concluded from the
qualitative data analysis, each of the participants identified specific activities that positively impacted feelings of comfort over the course of the study.

Based on the results of the Online Student Connectedness Survey presurvey and postsurvey, Maisie saw an increase on in how she effectively communicated in the course. At the same time, in her semi-structured interviews, she revealed activities that supported this positive impact. This included opportunities activities such as being able to engage with others in weekly workshops, being able to learn about the different types of customer relationships that were beneficial to her and her business. Maisie also noted that in times where she felt frustrated, she received support for the other women. In her Phase II and Phase III interviews she provided the following example,

Like I got really frustrated with the foundation, and I almost started to cry, but I promise you I didn't. I was just so frustrated because I don't know how to do a website. I don't know how to build one. And so, everybody was talking and I'm just looking at them and I felt alone, and I felt like, oh my gosh, I can't do this. So, when [the facilitator] came to me [to describe my website] and I said to her, I can't do this. I'm just not going to do this. And they asked me to go back into the group. I didn't go back into the group because I was so upset. Then the next day, [redacted] messages me this long message and she just made my day. She's like, I know she says, this is personal for you. This is not something that you're selling. This is personal, just don't give up. And you know that that's, that means a lot. And of course, I cried when I read it.

This support in a time where she felt inadequate encouraged her to remain a part of the group and the exchange in turn impacted her feelings of comfortability. Along with
Maisie’s experience in becoming more effective at communicating in the group, Louisa also had a 2-point score increase on the Online Student Connectedness Survey between her presurvey (3 – Neither Agree or Disagree) and postsurvey (5 – Strongly Agree) on Item 5 (I felt comfortable asking other members for help).

One of the benefits that VCoPs offers is the opportunity to ask for help and support. Altebarmarkian and Alterman (2017) find that experts in a VCoP can function as an individual who can offer support and give insight to those who are novices. One of the activities that Louisa noted as having helped her, was working with her accountability partner who had more expertise in an area of their topic. In her Phase II interview she provided the example,

Say there is accountability partner that is more senior that can kind of like hold that hand of the junior partner, then it'll be more like, it would be more on my responsibility to reach out and kind of do those things and maybe foster that type of relationship.

In addition to the activities that allowed participants to ask for help, and aided in effective communication, characteristics of comfort were also cited by the participants as having positively impacted them in the virtual environment. This aligned with Theme 3: Interdependence Fosters Authentic Connections of the qualitative findings where participants noted that the synchronous weekly workshops (offered via Zoom Conference), where all participants attended, provided opportunities to ask clarifying questions about areas in which they were struggling or where they were encountering challenges. In support of this finding, research also notes that in VCoPs it is essential to have individuals who are able to mobilize and encourage participation (Altebarmarkian &
Alterman, 2017; Barnett et al., 2016; Porter et al., 2011). These individuals are typically adept at building relationship and can motivate others to participate in collaborative activities (Altebarmarkian & Alterman, 2017). At the end of the online business strategy course, Louisa noted the small size of the cohort to be an aspect that motivated her to participate and influenced her comfortability throughout the course. Louisa stated in her Phase III interview,

I think that the class size being small allowed for a more intimate experience. Because it's not like there's 30 of us. And you know how sometimes you're in class of your peers and you don't wanna be the first one to asks questions or things like that. But someone would step up and be a leader and say “Where y’all at?”

Maisie shared similar sentiments, noting that initially she had apprehensions about participating, but that the other participants made her feel comfortable when she engaged. She stated in her Phase I interview, “I kind of felt a little out of place, you know, because I'm a little bit older. They were like really young and I just didn't know how to fit in the way that I really wanted to.” Later in her Phase III interview, Maisie noted that even when she could not relate, she still felt included. She stated, “Even when I couldn’t relate, they always tried to include me, and I would give my different perspective and things like that.”

**Activities that impacted feelings of community.** As a construct, community measured the perceptions an individual had regarding the amount of the time they spent with each other, their emotional attachment to other members, and their ability to get their needs fulfilled based on their participation (Bolliger & Inan, 2012; Ford & Inan,
Research on social capital revealed that activities that impact feelings of community are those that allow members to build trust (Ardichivili, 2008; McLoughlin et al., 2018), establish role clarity (Barnett et al., 2012, 2016), and those that enable them to establish intimate connections with others within the VCoP (Hafeez et al., 2019; McLoughlin et al., 2018). Based on quantitative and qualitative outcomes, virtual collaboration positively impacted feelings of community in this study.

Hafeez et al. (2019) indicated that time spent with others is an influencer in feelings of community. That is because the more an individual is actively engaged in a community, the more likely they are to have positive feelings of social connectedness. Social connectedness being reflected as having a sense of community was found specifically in Maisie’s Online Student Connectedness Survey response where she had a 2-point score increase between her presurvey (3 - *Neither Agree or Disagree*) and her postsurvey (5 – *Strongly Agree*) on Item 10 (*I spent a lot of time with other members*). All participants agreed that activities completed within this online business strategy course aligned with virtual collaboration to be effective in building a feeling of social connectedness and having a sense of community.

Maisie expressed in her Phase III interview that the ability to work with a variety of accountability partners helped her to feel encouraged and motivated her to participate in the online business strategy course. She noted that these accountability partners kept engaged in the weekly sessions, and that she was also able to connect with these individuals on Facebook Messenger and text messaging. When asked about how she worked with her accountability partners, Maisie highlighted that working with others to
edit her final presentation was key in establishing relationships. In her Phase III interview, she stated,

   It's funny because I've really built a rapport with Louisa, [redacted] and [redacted]. We would just talk about our own, our own projects and then I would, if there was ideas that would come up or they would say things and I had ideas for their businesses, then they will let me know.

The sense of community was illustrated by qualitative findings identified in Theme 2: Richness of Synchronous Interaction. Multiple participants expressed that they were able to build familial bonds with individuals, referring to each other as sisters or the group and its entirety as a sisterhood. Maisie, in particular, noted that weekly workshops were forums that she looked forward to. She stated in her Phase III interview, “I always tell my husband on Mondays don't bother me cause I got to talk to my sisters...it's really helping me grow a lot in situations that I never thought I would. So, I'm very grateful.”

Outside of the weekly sessions, other examples of opportunities to build a sense of community were provided. As evidence by Louisa’s Online Student Connectedness Survey 2-point score increase between her presurvey (2 - Disagree) and her postsurvey (4 - Agree) on Item 12 (I feel that other members depend on me). In her semi-structured interviews, Louisa reported multiple examples of supporting other women when they needed it the most. She stated that in weekly workshops, activities like small group discussions, facilitated in breakout sessions, gave her opportunities to support others and to support them in growing their business. In her Phase II interview, she described how this occurred,
The [breakout room] portion of Zoom, while people kind of hate it because the teacher is gone and you have to do the work, I feel like that's the, that's the feeling behind it. Cause even I feel that sometimes like, Oh God, now I'll be by myself. But if I'm by myself with someone who I feel like is at a plateau, then I will start those questions. For example, we helped with Maisie, just different, um, services that she would have or her different programs. Like how was it that she would get funding and or different things that she'd had. So, we asked some questions surrounding that.

In addition to the weekly sessions, both Louisa and Jordan noted activities that had a positive impact on feelings of community. Porter et al. (2011) found that VCoPs need to be environments where individuals are willing to share their knowledge and resources and better understand how this contributes to the success of the great VCoP. In her Phase III interview, Jordan noted that having a forum to interact and discuss outside of the weekly workshops played a role in building relationships and finding opportunities to support other women, which in turn, influenced feelings of community. She noted that Facebook Groups, became a forum for her to share resources and opportunities with other women that she became knowledgeable of outside the confines of the online business strategy course. She provided the example,

A few weeks ago, or it might've been a month ago now, someone reached out to me and they wanted to put on a wellness event and I was like, okay, I have some great people, but she, you know, told me that she really wanted to stick to wellness. So, I went to the Facebook Group to target specific women. Like one woman [in her cohort] has like, um, you know, like a workout type thing where,
you know, she's, she offers workout services, counseling services. Um, Louisa, she sells flowers. I kinda just like reached out to them directly to let them know, “Hey, this event is happening. Um, would you be interested?

This supports the research of Ardichvili (2008) who identified that VCoPs can become a forum where individuals are exposed to opportunities to advance or enhance their careers. Additionally, Margherio et al. (2020) identified that these opportunities are contingent upon individual’s willingness to share them and if individuals feel they know an individual well enough to ask for support. Under the community construct on the Online Student Connectedness Survey, Maisie saw a 2-point score increase between her presurvey (3 - Neither Agree or Disagree) and her postsurvey (5 - Strongly Agree) on Item 11 (Other members got to know me quite well). During the online business strategy course, all members discussed the ways in which they got to know other members. Research has shown that when getting to know others and become acculturated into a VCoP, that use of technology is needed for face-to-face interaction (Antoci et al., 2012; McLoughlin et al., 2018). This was echoed by Jordan who stated,

I like the [Zoom] cause just for right now in the state that we're in, it does allow you to be able to connect with people and have that, um, you know, face to face even though it's not in person. So, it makes it a little bit more personable and then depending on what it is that whatever type of [workshop] you're trying to do, the features that Zoom has with like the breakout rooms and different things like that are pretty cool.

**Activities that impacted feelings of interaction and collaboration.** Barnett et al. (2012) identified working towards common goals or values can be a strong influencer
in feelings of social connectedness. Along with this, McLoughlin et al. (2018) found that across the body of literature, interaction and collaboration in VCoPs are best supported when participating individuals share a common goal or vision. The Online Student Connectedness Survey construct of interaction and collaboration measured feelings towards engaging and working collectively with others during the online business strategy course. Based on the quantitative findings virtual collaboration had an overall positive impact on feelings towards interaction and collaboration, however, there were also examples provided that illustrated barriers encountered when developing those feelings.

Of the three participants, Louisa reported the most impact on her feelings towards interaction and collaboration. On the Online Student Connectedness Survey, Louisa had a 3-point score increase between her presurvey (2 - Disagree) and her postsurvey (5 - Strongly Agree) on Item 17 (I collaborate with other members) and Item 18 (I work with other members). Aligning this with the qualitative findings of Theme 3: Interdependence Fosters Authentic Connections, there were specific examples of activities that supported this positive impact. Louisa and Maisie, both cited Facebook Groups, which served as a discussion forum for interaction between the participants outside of the weekly workshops. This positive impact towards interaction and collaboration was seen in the examples below:

<table>
<thead>
<tr>
<th>Louisa</th>
<th>Phase III Interview</th>
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<td></td>
<td>I didn't follow through on one of my assignments one week. But the group was still popping, and everybody was still discussing what they had to do. So, it kind of made me feel like, I'm going to catch up with what I needed.</td>
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</tbody>
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Maisie  
*Phase II Interview*

Every now and then I'll just go on there and I'll say, hey beauties, just checking on you, making sure everybody's good or if I have like any questions or anything like that.

In addition to Facebook Groups, weekly workshops offered via Zoom were another forum highlighted by this study’s participants showing the positive impact on their feelings towards interaction and collaboration. Participants noted that brainstorming activities during weekly workshops, as well as when paired with accountability partners, were both an influencer in their feelings towards interaction and collaboration. This is closely aligned with research that showcase the sharing and creating knowledge as a main benefit of virtual collaboration and participating in VCoPs and that this occurs through opportunities for discussion (Radovan & Kristl, 2017, Sotomayer, 2014). Randovan and Kristl (2017) found that opportunities to participate in these discussions can help learners to draw their own meaning from the knowledge being shared and can help identify ways they can contribute to this knowledge creation. This was the case with, Jordan, who noted that her feelings towards participating in brainstorming and ideation was situational, stating at the initiation of the course, “Discussing ideas for me is more situational. I'm more inclined to maybe speak directly with people who can help that idea flourish a little better than just kind of throwing it into, you know, a room.”

Research also highlights role clarity and understanding of the group’s common goals as an impact to feelings of connectedness within VCoPs (Ardichvili, 2008; Mather & Cummings, 2014; Radovan & Kristl, 2017)). At the same time, Altebarmarkian and Alterman (2018) found that there is more of a willingness to participate in collaborative activities, when individuals understand how their work relates to the work of others and
they are offered exposure to that work. This aligns with a barrier that did appear in this study. Maisie noted that one barrier that negatively impacted her feelings towards interaction and collaboration was being the only member who was at the helm of a non-profit, whereas the other participants had for-profit businesses. She noted that this caused frustrations for her and that it impacted her willingness to participate in various collaborative activities. In her Phase III interview, she noted,

> Everyone else was a for profit, so it was very different. They would speak about certain things about profit, how to make money, how to, how to go online doing different packages, things like that. I really, I mean I studied, I listened to them and I try to relate, but I, I couldn't always relate.

**Research Question 2: How and to What Extent does a Group of Culturally Diverse Women use Virtual Collaboration Tools for Activities in an Online Business Strategy course?**

The intent of this research question was to explore the ways in which participants used virtual collaboration tools to engage in activities throughout the online business strategy course. Unlike CoPs in offline environments where in-person interaction is vital, VCoPs are reliant upon virtual collaboration tools for interaction and participation (Ardichvili, 2008; Hafeez et al., 2007). Additionally, technological aptitude and willingness to use and actively engage with the technology available in an online environment has been identified as a strong indicator and influencer of social connectedness (Ardichvili, 2008; Nistor et al., 2012). In this section, quantitative findings of the Technology Use Survey, and qualitative data from the semi-structured interview guide, namely **Theme 2: Richness of Synchronous Interaction**, were converged to identify
how often participants used the virtual collaboration tools available to them, but also the collaborative activities that each virtual collaboration tool supported. These will be discussed in alignment with how each of these virtual collaboration tools was used including (a) Zoom for face-to-face or synchronous interaction and engagement, (b) Facebook Groups for debriefing, sharing resources, and communicating career advancement opportunities, (c) Facebook Messenger for just-in-time communication or support, and (d) Low engagement with Google Drive.

**Zoom for face-to-face or synchronous interaction and engagement.** Wainfain and Davis (2004) found that video-conferencing technology such as Zoom can mimic the experience of in-person interactions by displaying both body language and voice. Wang and Huang (2018) found that these features can contribute to productivity among virtual teams. At the same time, McLoughlin et al. (2018) found that tools that offer these capabilities have been shown to help individuals develop a sense of community. These findings in the research align with the quantitative and qualitative outcomes provided through participants in this study.

The Technology Use Survey revealed that participants had the most consistent and frequent engagement when utilizing Zoom. When asked how they were using this tool throughout the course, participants noted that Zoom was used for face-to-face interaction during weekly workshops, small group discussions via breakout rooms, as well as the forum used to share their final projects. Additionally, these are features that supported collaboration activities such as brainstorming, giving and receiving feedback, and engaging in formal and informal discussions around workshop topics. For example, during their Phase II interviews,
Jordan
Phase II
Interview

I like Zoom because, just for right now in the state that we're in, it does allow you to be able to connect with people and have that, you know, face to face even though it's not in person. So, it makes it a little bit more personable and then depending on what it is that whatever type of program or what you're trying to do, the features that Zoom has with like the breakout rooms and different things like that, it's pretty cool.

Louisa
Phase II
Interview

I really do like the Zoom and I think it's just because even though it's virtual, it allows this type of communication and it also allows you to share that desktop. So, if you're working on something and you need to share it, then share it so I can see what you're talking about and maybe we can figure that out.

As it related to the Zoom tool’s breakout room feature, Louisa offered that this feature may have helped to encourage participation by minimizing feelings of intimidation and offering her and her peers’ opportunities to work through problems or issues they were encountering throughout the course in a more intimate and controlled setting. When asked to provide an example of how she was leveraging this feature, Louisa explained her Phase II Interview,

While people kind of hate it because the workshop leader is gone, and you have to
do the work. But if I'm by myself with someone who I feel is at a plateau, then I will start asking questions like ‘So what do you think is a way’ and I'm just reiterating things we’ve learned in the course.

Another feature of the Zoom tool that appeared to have a positive impact on the participants’ overall experience in the course was the share desktop feature. Both Louisa and Maisie described this feature as one that supported collaboration, by making it easier to get feedback on assignments they were working on throughout the course. Maisie mentioned this was particularly helpful when working with accountability partners to complete her final presentation as they could see what she was working on as if she was presenting in real time. These examples also supported the results on the Technology Use survey when asked about how frequently they were using the Zoom tool to engage with their accountability partners; where all participants offered a response of 1 (Never Used) on the presurvey and then a response of 5 (Used Frequently) on the postsurvey. Research also highlights that tools akin to Zoom as having powerful implications for learning and interaction in online environments aiding participants in working towards common goals or missions (Poppe et al., 2017) and enhancing communication by providing opportunities to comment and share presentations or other types of work-related documents (Endersby et al., 2017).

Facebook Groups for debriefing, sharing resources, and communicating career advancement opportunities. Discussion boards have been showcased in research as having asynchronous functionality that can enhance learning in online and blended environments (Hafeez et al., 2009; Hall et al., 2017). Although the setting of this research study was entirely online, there were blended-learning characteristics as participants
engaged in synchronous weekly workshops in addition to interactions that occurred via other asynchronous mediums such as Facebook Groups and e-mail. Following Zoom, descriptive statistical results of the Technology Use Survey revealed the Facebook Groups (which served as a discussion board feature throughout the course) was identified as a tool frequently used for engagement from the beginning to the end of the online business strategy course. In qualitative outcome examples provided by the participants, Facebook Groups was leveraged to debrief and stay up to date on assignments and the content of weekly workshops. As mentioned previously, in response to Research Question 1 Louisa provided an example of how Facebook Groups allowed her to stay abreast of workshop topics when she had missed a weekly workshop and helped her to minimize feelings of missing out. Facebook Groups was also found to support informal communication, where participants’ made posts to check-in with each other or ask questions in their time of need throughout the week. This supports the research of Hafeez et al. (2009) who found that discussion boards can aid in creating community, by allowing for interactions to expand knowledge, contribute to experiences, and an opportunity to learn more about others participating in the VCoP.

Facebook Groups can also serve as a vessel for participants to share resources with each other and to create opportunities to collaborate outside of the course. Kabilan (2016) found that Facebook aided in connecting individuals to information that would help them persist in their careers. This could include opportunities for professional development as well as career advancement opportunities (Kabilan, 2016; McLoughlin et al., 2018). This supports the qualitative results of this study where Jordan noted being able to integrate other Facebook features into her Facebook Groups allowed her to have
productive interactions and the ability to share opportunities throughout the course. When asked how she leveraged these Facebook Groups throughout the duration of the course, she shared the following examples in two interviews,

**Jordan Phase II**

I was able to go through a Goldman and Sachs program. And so, while I was there, I realized that my business wasn't necessarily eligible for the course, but I immediately got home and did a Facebook live video where I shared everything from that with the group. A few people each applied, and one member actually got accepted to the course.

**Jordan Phase III**

Someone reached out to me and they wanted to put on a wellness event, and I was like, okay, I have some great people, but she, you know, told me that she really wanted to stick to wellness. So, I went to the Facebook Group to target specific women.

**Facebook Messenger for just-in-time communication or support.** As it pertains to the use of Facebook Messenger, quantitative results of the Technology Use Survey were inconclusive, with frequency of use varying across the three participants responses. Qualitative data, aligned with *Theme 2: Richness of Synchronous Interactions*, revealed that Facebook Messenger was utilized almost interchangeably with text messaging. This tool was leveraged as an effective communication tool, allowing participants to get in touch quickly with their peers or accountability partners, as well as to obtain information they needed from a singular individual versus the full group.
For example, Maisie was the only participant whose Technology Use survey results revealed the most frequent engagement with Facebook Messenger from the mid-point, and through the end of the online business strategy course. When aligned with her qualitative responses, it showed that Maisie had a preference for using Facebook Messenger and Text Messaging to communicate with her accountability partners. This echoed sentiments expressed by Louisa who actually reported a decrease in using Facebook Messenger, with a presurvey response of 5 (Frequently Used) and postsurvey response of 3 (Occasionally Used). When asked about how she interacted with accountability partners throughout the online business strategy course, Louisa stated that Facebook Messenger and Text Messages served as a more expedited method to get in contact with accountability partners she had not been assigned to.

Although engagement with Facebook Messenger was inconsistent in the Technology Use survey outcomes, the utilization of this tool does align with previous research on computer mediated technologies for instant messaging capabilities. When tools have both asynchronous and synchronous capabilities, research also supports that these tools are more flexible in supporting various types of communication and collaboration (Moore, 2016).

**Low engagement with Google Drive.** Research has also found virtual collaboration tools that have file-sharing and feedback generation capabilities can have a positive impact on an individual’s participation in online environments (Moore, 2016; Wainfain & Davis, 2004). Altebarmakian and Alterman (2019) found that when virtual collaboration tools with these features support partnership or collaborative activities, they have the ability to motivate learners to participate, which contributes to their skill
development. Although Google Drive was one of the five tools available to participants in this study, and it was introduced as a tool to leverage for file-sharing of documents and providing feedback; yet, participant’s reported use of Google Drive in this study was very low. An unexpected finding was all three participants provided examples of using Canva, a virtual collaboration tool that was not included this study. Canva (www.canva.com) is an online graphic design tool that all participants leveraged to develop their final project presentations.

Although Canva shared similar capabilities to Google Drive, including a commenting and file-sharing feature, there was a clear preference for using Zoom’s share screen feature to share their presentations with others and get feedback synchronously from their accountability partners on their final projects. Thus, the combined use of Canva and Zoom provided participants the support they desired when completing their final projects. For this study, this explains why the need for engagement with Google Drive may not have been found to be a necessary tool for achieving their goals.

**Research Question 3: What are the Experiences of Culturally Diverse Women Participating in an Online Business Strategy course?**

As the participants in this study were all women of color who were entrepreneurs, but who also varied in age, ethnicity, and business type, this question was designed to address the ways in which the intersections of their identities played a role in their experiences in this study. The online business strategy course that participants were participating in was uniquely juxtaposed as VCoP (Ardichvili, 2008) but also a counterspace (Ong et al., 2018). Research has regarded counterspaces as a strategy to combat the oppression and discrimination underrepresented populations face in more
mainstream environments (Davis et al., 2020; Johnson et al., 2017; Vaccaro & Camba-Kelsay, 2017). This section converges findings from both the Online Student Connectedness Survey, and the Technology Use survey in alignment with the qualitative data. It describes that the three women of color’s experiences fostered the (a) development of a support network of entrepreneurs, (b) nurturing of deep bonds that transcend cultural differences and minimized feelings of isolation, and (c) enhanced technological aptitude and business acumen.

Development of a support network of entrepreneurs. Research has shown that participation in counterspaces to combat feelings of loneliness (Ong et al., 2018; Johnson et al., 2017), and can contribute to their professional success (Vaccaro & Camba-Kelsay, 2016; West, 2017, 2019). This is because these spaces provide women of color access to a community who have experienced similar challenges across their careers. Aligning with qualitative findings in Theme 1: Entrepreneurial Progression, the participants in this study shared how their identities as women of color was a factor that influenced their desire to join The Prominence Association for Women and for signing up for the online business strategy course. Highlighting a desire to not just connect with other women of color but to learn from them as well. As stated by Jordan in her Phase I interview “I hadn't heard of a membership organization that was specifically for entrepreneurs who are women of color. you know, that was founded by a black woman. That was really fostering this environment of collaboration and learning and growing together”.

As noted previously and aligning with qualitative findings under Theme 2: Richness of Synchronous, and the overall increase in feelings of community on the Online Student Connectedness Survey (Bolliger & Inan, 2012), the women in this study showed
encouragement towards each other in a number of ways. Be it Jordan, who identified sharing a skill development opportunity for the group via Facebook; or Louisa who shared that her use of social media was a way to bring awareness to the businesses of the other women participating in her cohort. By the end of the study, all participants indicated, in some way, that their cohort had become a network they felt they could leverage who understood their unique needs as entrepreneurs. This is important because research has shown that women of color often lack the support they need to advance in their careers (Hoyt & Murphy, 2016; Miles et al., 2020), and that this can often impact their confidence and motivation (Miles et al., 2019). In this study, the participants were able to build relationships that supported their professional success. In highlighting her overall experience in her Phase III interview, Louisa solidified the interpretation of this finding in stating the following,

I have like a collection of ladies that I know and that I'm going to help a small business, you know, we rise by lifting others and if you're already in my pack then I'm going to go to you before I go to someone else.

Along with this, participants also shared that their status as women of color and entrepreneurs, meant that their experiences and the types of discussions that they may have engaged in were different than populations that they typically encounter. For example, Louisa stated in her Phase I interview, “I feel like we are entrepreneurs who are women of color, right? We don't have the same conversations as other ladies or not all women. Cause we know that we are the exception to the rule.” This supported the abundance of research that encourages the creation of counterspaces where typically
underrepresented individuals are able to have open conversations that would otherwise feel uncomfortable, or not be at liberty to have.

**Nurturing deep bonds that transcend cultural differences and minimized feelings of isolation.** Aligning with quantitative data on the Online Student Connectedness Survey, which revealed strong feelings of community and comfort throughout the duration of the study, as well as qualitative findings aligned with *Theme 3: Interdependence fosters Authentic Communication*, the participants expressed being able to build deep bonds with their peers throughout this study. One major outcome of counterspaces is the ability to build relationships with other women who have shared experiences and histories (Ong et al., 2018; McConnell et al., 2016; West, 2017). What was interesting about the findings of this study, is that participants used words such as sisters, sisterhood, and aunt to describe the closeness and intimacy of the relationships they were able to develop with other women in their cohort.

Research has shown that in more mainstream professional settings, women of color often express feeling isolation and loneliness (Callahan et al., 2015; Irgens, 2019). This is often a direct result of being underrepresented and being subject to discriminatory behaviors such as microaggressions and stereotypes (Ong et al., 2018; West, 2017, 2019). Ong, Smith, & Ko (2018) and Vaccaro and Camba-Kelsay (2016) found that in counterspaces these feelings are often countered by feelings of community and comfort that women of color are not always afforded in their day-to-day lives. Describing their cohort as a sisterhood, where participants expressed having a genuine concern for the well-being and success of their peers, appeared to minimize some of the isolation and
discrimination that they encounter as women of color who were also entrepreneurs. This was best illustrated in examples by Louisa and Maisie, who stated,

Louisa  
*Phase III Interview*  
I was able to find another chick out there that is doing the same struggle. Not this doesn't have to be the same business, but she's living her own same lonely race. It's almost like we're racing in place by ourselves and then I'm like, I see you over there. You know what I mean? Like I'm not alone in this thing.

Maisie  
*Phase III Interview*  
The best part was building the relationships that I did with everybody and how we helped each other. There was times that I would feel stuck and didn't know what to do and they really reached out to me and helped me out a lot. Um, that meant a lot. It still means a great deal to me.

Like much of the research on counterspaces, criteria for members in The Prominence Association was limited to women of color who were entrepreneurs (Ong et al., 2018; Johnson et al., 2017; West, 2017, 2019). This likeness among these identities played an important role in how these participants were able to develop these deep bonds. However, other characteristics of their identities were initially perceived as barriers that participants believed would impact how they engaged with others during the online business strategy course. Aligning with the qualitative data under *Theme 1: Entrepreneur Progression*, Jordan and Maisie both described their ages and previous professional experiences as identifying characteristics that might negatively impact how they could engage and add value during the course. The positive finding here, was that these barriers were ultimately non-issues. Instead participants in this study noted that participation in
this counterspace was beneficial because of the diversity of backgrounds and age actually
enhanced brainstorming, sharing ideas, and provided an array of perspectives when
working together.

This diversity also allowed them to create sustainable and mutually beneficial
relationships that transcended the confines of the professional organization and birthed
their friendships. An example provided by Jordan in her Phase III interview illustrates
how these perceived barriers were nullified,

I used to feel like a little awkward or intimidated slightly because I'm, I'm like
the youngest... It was just like me questioning, like, what do I have and I'm
going to bring to these women and blah, blah, blah. And I feel like in all that
we do within the Prominence Association for Women, it always feels like a
two-way street, which is good because it never feels like you're giving more
than you're receiving.

**Enhanced technological aptitude and business acumen.** West (2019) found
that one of the major benefits of a counterspaces was its ability to help women of color to
develop their professional identities. This professional identity was identified as a key
factor in their career persistence across a number of industries, as it closely tied to their
self-efficacy in pursuit of entrepreneurship. When asked at the beginning of this study
what women were hoping to gain from their participation in the online business strategy
course, participants noted that they were looking forward to generally growing as
entrepreneurs and as well as obtaining skills that would benefit them in developing and
growing their online businesses. By the end of the course, women noted that through the
collaboration with other women they were not only able to enhance their technological aptitude but also to develop their business acumen as entrepreneurs.

Technological aptitude has been found to be a factor that impacts an individual’s active participation in a VCoP. This could include their comfort with using the technologies available to them and as well as their ability to leverage these tools (Ardichvili, 2008; Hafeez et al., 2019; McLoughlin et al., 2018) As evidenced by the qualitative findings aligning with Theme 1: Entrepreneurial Progression, converged with the quantitative findings of the Technology Use Survey which revealed high engagement with Zoom and Facebook Groups throughout the online business strategy course, the participants noted that they were able to build skill and capabilities in utilizing these tools that aided them in being more technology savvy professionals. This not only included being introduced to new technologies, but also featured within the various technologies that they had never leveraged prior to their enrollment in the online business strategy course. Interestingly enough, it was not only the exposure and frequency of use that participants saw as a benefit to their participation, but also the opportunities created to use the tools in weekly workshops and in interacting with the other women. They expressed these activities as helping them build confidence in using the tools, with Louisa and Maisie stating that prior to enrollment in the online business strategy course that they often required support from others. Towards the end of the online business strategy course participants expressed feeling more comfortable and confident using Zoom, Facebook Groups and Facebook Messenger than they had at the beginning. They also discussed how these virtual collaboration tools would be leveraged for their businesses.
This is an indication that they grew their technological aptitude in ways that they felt was necessary and relevant to the success of their careers as entrepreneurs.

Participants also shared that their participation in the online business strategy course positively impacted them by offering opportunities to hone and build skills related to growing their business. This was reflected in the qualitative findings found in Theme 1: Entrepreneurial Progression, and aligned closely with quantitative results on the OCSC, which included opportunities to enhance their communication skills, gaining a better understanding of the different types of customer relationships, and gaining exposure to strategies for automating their businesses. This supports research by Margherio et al. (2020) and West (2017) who found that professional development opportunities within counterspaces are often embedded in interaction with others. In addition to this, counterspaces are most beneficial outcomes for women of color when strategies that help them to better navigate their careers and encourage their professional success and career advancement.

**Implications and Recommendations**

As a result of conducting this research study, there are several implications this study presents for myself as a research, but also from an industry perspective, and future research perspective. In the following sections these implications and recommendations are considered at length, including (a) personal implications, (b) recommendations for professionals in practice, and (c) recommendations for future research.

**Personal Implications**

Leading this research study offered me many opportunities to develop my identity as a researcher, hone my skills as a learning and development professional, and offered
me insight into the experiences of women of color that I had not previously considered. Through these challenges, I was able to identify a number of implications that will aid me across the trajectory of my professional career. These implications include (a) commitment to transformative research, (b) development of my identity as a scholarly practitioner, and (c) the unexpected rigor of a convergent parallel mixed methods design.

**Commitment to transformative research.** Frey (2018) notes that research conducted in the transformative paradigm is “rooted in the recognition that injustice and inequality are pervasive, and the belief that research and evaluation are important for addressing these societal ills” (p. 1). In approaching doctoral research, it was vital for me to contribute to research that addressed oppression, and to explore the experiences of individuals who are underrepresented. As a Black man, who also identifies as a homosexual, it also became imperative that I explore how the intersectionality of identities can play a role in an individual’s experience, particularly in professional settings. However, while this passion fueled my desire towards this research topic, it also presented a number of challenges that provided me growth as a researcher.

I’ve personally experienced oppression and discrimination across both educational and professional careers, based on the intersection of my identities, I initially approached this research with my own biases. Conducting this research forced me to unravel these biases and to place a focus on the participants who were women of color. Although I was familiar with the term intersectionality, deeper exploration into the body of research and what this meant for women of color helped me to ground my study and accurately document their experiences in my research findings; filtering out my own experiences. It also challenged my preconceived notions about women of color as I
learned more about how their experiences differ when intersected with other characteristics like age or occupation.

While I had a general understanding of the marginalization and discrimination that women of color faced as professionals, being able to investigate this through the lens of social capital and social connectedness became another personal growth experience. Applying the social capital and social connectedness lens to the participant population was a necessary skill for me to hone. Creswell (2017) expressed that transformative researchers should place an importance on the study of lives and experiences of diverse groups and focus how their lives have been constrained by oppression. By understanding how social capital has played a role in the academic and professional success for women of color, helped me to better frame what oppression looked like from their perspectives.

Another learning experience for me as a transformative researcher, was giving each participant a voice for sharing their experiences in their own words. In order for me to achieve this, it was essential for me to step into the role of an outsider, although I had previously been an insider in the organization (Creswell, 2017). As the participants shared their stories with me throughout the data collection process, and later during the data analysis phase, my positionality remained a constant reminder for me. It became necessary in both of these roles that I not draw my own meaning about their experiences, but instead, connect their responses and examples back to the body of research that framed this study. Each of these are skills will be beneficial as I maintain my commitment to transformative research, now and in the future.

**Development of identity as a scholarly practitioner.** Prior to this research study, I had not previously conducted action research. As a learning and development
professional, who has had a career in designing learning and organizational development solutions across various industries, I initially perceived action research as akin to the needs analysis process in my professional setting. However, the integration of scholarly support is often not a consideration in my professional endeavors. As such, the process of becoming an action researcher and merging my professional expertise with scholarly research findings was a growth opportunity that has several personal implications for myself.

Mertler (2017) proposed how several applications of action research principles can be applied and being introduced to these applications became one of the first steps in understanding how my role as a practitioner could transform into that of a scholarly practitioner. The process of understanding these action research applications started when I began finding scholarly support for my national context, as well as developing my problem statement and research questions. Through this I found research that existed on social connectedness and women of color and began to uncover past research where technology had played a role within those two variables. At the same time, an important teachable moment for me was understanding that action research should center in a local context in which we have a sphere of influence (Carr & Kemmis, 1986; Creswell, 2014).

The deep exploration into the body of research was another area that aided me in building my identity as a scholarly researcher. Through this I was able to understand how the existing research on social connectedness, virtual collaboration, and the experiences of women of color was relevant in exploring my local context as well as my participant population and setting. Much of this occurred during the literature review process, where I was able to gain exposure to studies that aligned with my research interest about social
connectedness and virtual collaboration while at the same time furthered my knowledge on how this data was relevant to women of color; who were my participants in this study. The deciphering of the literature about all three variables ultimately helped me frame my innovation and led me to identify the best strategies that I could employ within the context of my study.

As these best practices arose during the literature review and as I crafted my innovation, I could tangibly position myself as a scholarly practitioner. This process carried through to data collection and data analysis, where it became apparent that my research experiences were not only aiding me in becoming a stronger scholar who could think more critically, but also a more informed practitioner. This heightened critical thinking helped me to employ a more well-rounded lens on the unique experiences of my participants and aided me in drawing connections between my professional experiences and the findings that prevailed in the existing body of research. By the end of this research study, I felt confident in my abilities as an action researcher, but also noted that these are skills I will need to continue to improve upon across my career. Being a scholarly practitioner will require me to continue to challenge my own assumptions and to remain abreast of how the body of research is ever evolving.

**Unexpected rigor of convergent parallel mixed methods design.** In approaching the design of this study, it became important that the study employed a mixed method research design. Initially, I thought an exploratory sequential design would be appropriate, where I would have collected quantitative data first, and then explored those findings through interviews or focused groups (Creswell, 2014). As I reflected more deeply on my participants, as well as conducted my literature review, the
convergent parallel mixed methods design felt more relevant to my exploration of virtual collaboration and its impact on social connectedness among the women of color population. With a convergent parallel mixed methods design, both quantitative and qualitative data was collected in tandem, and then converged to identify findings in the research (Creswell, 2014). Through the process of data collection and analysis, I realized how rigorous this research method was. Yet, the implications it will have for me as a future action researcher was a valuable lesson learned.

When employing the convergent parallel mixed methods design, I came to appreciate the quality of the quantitative tool utilized and being able to align that tool to specific variables in my study that I intended to measure. While the Online Student Connectedness Survey (Bolliger & Inan, 2012; Ford & Inan, 2013; Zimmerman & Nimon, 2017) had been identified as a valid and reliable tool in measuring social connectedness in virtual environments, it did not address the extent to which potential participants would use specific virtual collaboration tools. Research I uncovered, highlighted the importance of the frequency and nature of use regarding virtual collaboration tools as being essential to active participation in a VCoP (Nistor et al., 2012; McLoughlin et al., 2018). This led me to design the Technology Use survey. Using both of these survey style instruments made me realize the importance of having a relevant quantitative measure for both variables in my study as well as supporting a convergent parallel mixed methods design. Deploying both instruments allowed me to assess each participant’s experience in a standardized way, while at the same time, use the semi-structured interviews as a guide to further explain the results of the quantitative instruments.
The qualitative data collected became a forum for participants to share their own experiences and provided examples that aided me in making sense of the quantitative findings with examples. The implications of using three data collection tools ensured data triangulation (Creswell, 2011) and allowed me to add rigor to my research design which now included both measurable data and rich descriptions around the participants’ experiences. From this I learned that it is also essential to have alignment between my quantitative instruments and the questions posed in the semi-structured interview guide. In addition to general questions, the semi-structured format of the interview also allowed me to include supporting questions that asked participants to provide specific and detailed examples of their experiences. Including those additional questions aided me in the data analysis and writing of the discussion content as I was better in anchoring the quantitative findings to participant experiences. This also became a strong implication for me as an action researcher in the future, who now sees the value of a convergent parallel mixed methods design.

**Recommendations for Professionals in Practice**

As the Prominence Association for Women continues to develop virtual learning opportunities that uplift women of color who are entrepreneurs, the stakeholders of this association may also benefit from the findings of this study. When communicating these findings with the organization’s stakeholders it will be essential to highlight these findings and the implications they have for the organization. This section reviews those recommendations for the (a) organization’s leadership, (b) workshop facilitators, and (c) the entrepreneurs who are participating.
**Organization leadership.** One challenge that the Prominence Association for Women has faced is the retention of tenured members (“Annual Report”, 2019). With participants in this study having been members for at least a year, there were several findings uncovered that they had a positive impact on their entirety of their experiences in the online business strategy course. As the organization's leadership strives to make an impact on the careers of these women of color by offering virtual opportunities to collaborate, they should consider investing in technology that supports synchronous interaction, build in structured learning opportunities that highlight the capability in those technologies, and consider providing role clarity and purpose for those who are participating in their online courses.

As explored by Wainfan and Davis (2004) virtual collaboration tools have the power to enhance communication and assist the collective work of a group in an online environment. They are also the vessel by which interaction and collaboration happen in a VCoP. What was discovered in this study is that the features of virtual collaboration tools can have an impact on the overall participant experience. This brings two recommendations for the organization’s leadership. First, they should consider investing in technology that has capabilities for large and small group discussion, synchronous interaction, and collective work. While the organization currently leverages free tools such as Zoom and Facebook Group, it may benefit in investing in a more robust learning management system that includes more advanced tools. As the participants of this study expressed enjoying features such as breakout groups and sharing screen features, having a learning management system may create even more engagement with the lesser used tools like Email and Google Drive when they exist within the same system.
The second recommendation is supporting more structured learning opportunities to build their membership’s aptitude in technology which could help participating members acclimate to the course quicker. Antoci (2012) found this to be a key factor in developing feelings of social connectedness. Over the course of this study, as the participants gained more hands-on experience with using technology, they expressed more feelings of confidence and looked forward to engaging with the peers in weekly workshops. However, this hands-on experience was generally described as informal. Providing these women more formalized training opportunities at the initiation of their participation in the organization, or enrollment in a professional development course, may aid them in becoming active participants sooner. Along with gaining opportunities to build technological aptitude, the organization’s leaders should consider providing more role clarity and more structured mentorship opportunities for the women participating in virtual learning opportunities. Because the development of these relationships through virtual collaboration was also shown to impact social connectedness, it may have further implications for addressing the challenges with retention among members of the Prominence Association for Women.

**Workshop facilitators.** Over the course of the study, synchronous interactions facilitated via Zoom where shown to positively impact feelings of social connectedness, including community, comfort, and interaction and collaboration. Although the OCSC included a subscale for facilitation, it was not considered in this study due to the variety of facilitators that were engaged to lead weekly workshops. There were recommendations that arose that are important for potential workshop facilitators to consider in the future.
Although accountability partners were assigned in this study, participants noted that it became difficult to find times to meet outside of weekly workshops, and that they tended to gravitate to individuals that they had worked with previously instead of working with those that they did not know as well. Role clarity has been identified as a driver in encouraging participation in CoPs especially when members do not previously have relationships (Mather & Cummings, 2014; Porter et al., 2011). For the workshop facilitators, these findings drive a recommendation to establish clear parameters around the role of accountability partners, and to establish a common goal or mission that guides their collaborative work.

Participants expressed that weekly workshops, offered via Zoom, were where most of their interaction took place. Synchronous interactions like this has been shown to have influence feelings of social connectedness in virtual environments because it most closely mimics in-person interactions (Muszynska et al., 2015; Wang & Huang, 2018). When video-conferencing and audio-conferencing capabilities are enabled, participants are more easily able to witness body language, hear inflection in voices, and have interaction that is generally free of delay (Poppe et al., 2017; Wainfan & Davis, 2004). Based on the findings of this research, it is recommended that workshop facilitators understand the positive impacts these types of interactions can have on participant motivation and engagement within an online workshop. Participants noted activities that supported this were being able to share their work and through small group discussion and activities. Altebarmakian and Alterman (2017) revealed that the ability to share and see work of others can help members of VCoPs make learning more meaningful for them. Additionally, small group discussions were viewed as having a positive impact on
the development of relationships and minimized feelings of intimidation and isolation. This is another relevant consideration for workshop facilitators, as opportunities for peer to peer discussion separate from the larger course may encourage more engagement in the workshops.

While sharing their work, and small group discussions were seen as favorable, one challenge that arose during this study was the ability to connect course content and learning to the women’s businesses. For example, Maisie who was the leader of a non-profit, struggled to understand how course topics that centered on for-profit businesses could be applied to her. This at times caused her to feel excluded, which could have negatively impacted her feelings of connectedness towards the group. One of the major purposes of a VCoP is to be able to create and share knowledge in this online environment (Ardichvili, 2008). Understanding that this could pose barriers for some participants, future workshop facilitators should consider ensuring that course content can be relevant and flexible to all participants regardless of their background.

Entrepreneurs. In this study, all of the women of color participating were entrepreneurs at the helm of their own businesses. An abundance of research has found that women of color who are professionals are disadvantaged due to their underrepresented status (Cornelius, 2013; Davis et al., 2020; West, 2017). This includes experiences in their professional environments where they are less likely to get opportunities for career advancement or for professional development (Ong et al., 2018; West, 2017, 2019). An important finding to note is that all participants shared they sought out the Prominence Association for Women because of its focus on bringing women of color together. This suggests that active participation in the organization and enrolling in
courses like the online business strategy course, aided participants in garnering additional benefits. These benefits included opportunities to build and develop skills relevant to their business and building a stronger emotional and professional support network. Both of which align with previous research and solidified the importance of counterspaces for women of color (Ong et al., 2018; Johnson et al., 2017; West, 2017, 2019). This leads to my recommendation that entrepreneurs should approach these professional development situations with an openness and willingness to learn, as it can greatly impact the value they can incur from these experiences.

**Implications for Future Research**

Having conducted action research for the first time, I found the entirety of this research process both challenging and rewarding at different junctures. One of the most fulfilling parts of this research, was the discovery of findings that could support the future success of the Prominence Association for Women participants and be a potential solution to the challenges they encounter. With this being said, if given the opportunity for another to conduct this research study again, there are several considerations I would make based on my learnings. These considerations focus on how I would suggest further exploration about how virtual collaboration impacts social connectedness among culturally diverse women. These implications for future research include (a) a focus on the features of a specific virtual collaboration tool, (b) an expansion of the participant population and setting, and (c) a quantitative survey instrument that considered engagement or facilitation measures.

**Focus on the features of a specific virtual collaboration tool.** During the literature review phase, I discovered a multitude of studies that focused on how a VCoP
engages with a specific virtual collaboration tool (Antoci et al., 2012; Kabilan, 2016; Sutterlin, 2018). Most commonly, this referred to video/audio-conferencing software (Sutterlin, 2018), and social networking sites (Antoci et al., 2012; Hall et al., 2017; Kabilan, 2016). In this study, I chose to explore the use of five different virtual collaboration tools. When reviewing the findings, it became evident that virtual collaboration impacted social connectedness the most when participants were engaging in synchronous interactions via Zoom. If this study was to be replicated, I believe it would be beneficial to focus on the features and uses of a singular tool versus multiple. Like other research that focused on one virtual collaboration tool, this may provide richer and deeper data on interactions and activities that support social connectedness or those that hinder social connectedness.

While it would seem most beneficial to focus on Zoom based on the high engagement with this tool in this study, placing a focus on one of the other tools that arose in this study may also be of value. This could include Facebook and its features, since at a minimum Facebook Messenger and Facebook Groups were identified as tools that supported asynchronous and synchronous interaction. Facebook has already been explored heavily in research as it relates to building social capital in online environments (Antoci et al., 2012; Hall et al., 2017; Kabilan, 2016). However, research studies with women of color who are entrepreneurs or professionals as participants are not as common. Another tool that was identified in this study, Canva, would also be an option to research further regarding its use and social connectedness. Canva was a virtual collaboration tool that all participants mentioned using to complete their final presentations yet interestingly, was not a tool promoted in my design of the online
business strategy course. With this being the case, conducting research to draw parallels between the features of Canva and social connectedness with an underrepresented group is recommended.

**An expansion of the participant population and setting.** This study took place over an eight-week period, and participants were a very small demographic of the full membership of the Prominence Association for Women. When considering future research, it is recommended that the participants and setting be expanded to include a larger participant population, which could then explore the organization represented in its entirety. The use of an explanatory sequential mixed method research design might be a viable research design to consider when expanding the participants and the setting. Following suit with other studies on social connectedness, this could allow for more inferences to be identified in the quantitative data, including drawing correlations to demographics such as educational backgrounds, age, ethnicity, or business type. Additionally, with a more robust participant population and setting, qualitative data could be collected through focus groups, which would allow for more rich data on both individual and collective experiences of the group.

Because there is a limited amount of research that exists aligning women of color to VCoPs expanding the setting in future research studies could help to solidify how virtual, collaborative activities impact feelings of social connectedness. Previous research on CoPs and women of color have leveraged settings that are across the entirety of a university, a school, or a segment of a professional industry. Research conducted in these larger settings has also revealed implications and challenges at the institutional level. Furthering research that aligns women of color to VCoPs could provide results that
starkly contrast the current study; yet where many of the implications could only be applied at the course design level.

Quantitative survey instrument that includes measurement for facilitation.

The Online Student Connectedness Survey quantitative survey instrument (Bolliger & Inan, 2012) implemented in this study was used to measure social connectedness in three constructs: community, comfort, and interaction and collaboration. However, I omitted one construct of this survey, facilitation. The facilitation construct was designed to measure participants feelings towards instructors (Bolliger & Inan, 2012), who are responsible for guiding the learning experience. While the intent of this research study centered on the experiences of participants and their interactions with each other, the addition of facilitation could be a consideration in a future iteration of this research study. Previous research that has focused on VCoPs, has highlighted facilitators or instructors as members of VCoPs even if their roles are very limited (Altebarmkian & Alterman, 2017; Barnett et al., 2012). Instructors have also been loosely defined in literature, and could mean those leading the course workshops, or other facilitation type roles like mentors, trainers, or leaders (Altebarmkian & Alterman, 2017; Barnett et al., 2012; Hafeez et al., 2019). The decision to include facilitation in future research could help to better assess the ways in which the facilitators support the participants' collective work. As with previous research, the facilitation construct could also help to describe the influence virtual collaboration has on the trajectory of social connectedness (Slagter van Tryon & Bishop, 2009). Additionally, because more tenured members of an organization often serve as informal mentors to less tenured members in the organization, including
the facilitation construct could have implications for their role in the participants’ experience as well.

Another consideration for future research would be to incorporate more rigorous quantitative survey instrument that measures virtual collaboration and technology engagement. While the self-designed Technology Use survey was able to collect meaningful data and provide limited information about technology use to this research study, a tool that has been fully designed to focus on virtual collaboration or technology engagement is recommended.

Limitations

With this being an action research study that was designed to explore a problem within a local context there were multiple limitations that presented themselves. These limitations include the (a) the research setting as a VCoP for women of color, (b) participant population and demographics, and (c) virtual collaboration tools used by participants.

The Research Setting as a VCoP for Women of Color

This research study is limited because all participants identified as women of color but who were also entrepreneurs. While research has shown that women of color who are professionals have similar experiences across their careers (Ong et al., 2018; West, 2017, 2019), the body of research specific to entrepreneurs who are women of color is not robust. The past research on this topic is restrictive when the variables of virtual collaboration and social connectedness are added. While this is a benefit to the filling a gap within the existing body of research, it became difficult to find align the
experiences of the participants in this study and those of other studies. This limits the immediate usability of this study’s results in the greater body of literature.

**Participant Population and Demographics**

With action research, and research that leverages predominantly qualitative methods, the participant population is typically small (Mertler, 2017) and as such the criteria for selecting these participants can make this even more limiting. These factors are also identified as a limitation to this study. Similar to other studies found in the literature review that focused on women of color and social connectedness or social capital across academic and professional settings (Hoyt & Murphy, 2016; Ong et al., 2018; West, 2017; 2019), there were only three participants in this study. While initially the participant population was slated to be more than 5, extenuating circumstances juxtaposed against the selection criteria for the study solidified this number. With only three participants, I cannot generalize these findings or make them commutable to other studies of this type.

The participant selection criteria of needing to have been members of The Prominence Association for Women for at least one year was another limitation of this research. Much of the existing body of research on VCoPs includes studies on how individuals are acclimated to a new environment (Altebarmarkian & Alterman, 2017; Nistor et al., 2012; Sotomayor, 2014). This selection criteria may have impacted the participant’s experience in the online business strategy course and could contrast previous research about acculturation in this VCoP. This is important to note, as this study explored the experiences of members who had opportunities for engagement with others in the organization for an extended period of time. Had the participant criteria been
broadened to include those with less tenure within the organization, or those who had not had as much engagement or interaction with other members, it could have yielded different findings. It could have also provided further context around the challenges in retaining more tenured members.

**Virtual Collaboration Tools used by Participants**

A final limitation of this study centers on the virtual collaboration tools that were used. As evidenced by the qualitative results, the list of virtual collaboration tools available to the participants was broader than the five tools being specifically explored in this study. As presented in recommendations for future research, the findings of this research must be framed to the nature and uses of the virtual collaboration tools that participants engaged with in this study and may not be applicable to other types of virtual collaboration tools. In taking this limitation further, research in this study was limited to the capabilities of the tools within this narrowly defined context. As such many of the strategies that were found successful in impacting feelings of social connectedness may not be as effective when placed in another context.

**Closing Thoughts**

With technology in a constant state of advancement, it is important to understand the powerful role it could play in fighting discrimination faced by women of color in education, employment, and beyond. Virtual collaboration, counterspaces in particular, is a strategy that could offer these women more access to spaces that are free of the sexism, marginalization and oppression they face in their day-to-day lives. When these virtual settings are guided by common goals and collaborative activities are supported by the right choice of virtual collaboration tools, these entrepreneurial women are able to
develop strong feelings of social connectedness. This social connectedness can aid them in building strong intimate relationships with each other in ways that positively impact their confidence, help to hone and develop their skills, and aid them in building a network who will support their professional success.
REFERENCES


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doi: 10.1177/1098214005283748


APPENDIX A

INVITATION TO PARTICIPATE IN STUDY

Invitation Letter

Study Title: Virtual Collaboration and its impact on Social Connectedness among a Group of Culturally Diverse Women

Dear <Participant’s First Name>,

My name is George Banks-Weston, and I am a doctoral candidate in the College of Education at the University of South Carolina. I am conducting a research study as part of the requirements for my Doctorate of Education degree in Curriculum and Instruction with a focus on Educational technology. As a Board Member of [redacted] I am interested in exploring how technology plays a role in your experiences as members. This research is being conducted to satisfy requirements for my Doctorate of Education degree in Curriculum and Instruction at the University of South Carolina.

The purpose of this action research study will be to evaluate the impact of virtual collaboration on social connectedness among a group of culturally diverse women participating in an online business strategy course through [redacted]. Research has shown that the use of virtual collaboration tools can impact group dynamics, and how an individual is orientated and contributes to a network or group I am conducting this research to understand your experiences participating and within the online business strategy course. If you agree to participate, you will be invited to share your experiences that will help inform my research and you will do the following:

1. Complete a pre-test and a Post survey that are approximately 10 – 15 minutes in duration at the beginning and at the end of the online business strategy course regarding your experiences using technology and interacting with others participating in the online business strategy course.

2. Be asked to participate in three 30 minute to 1 hour interviews that will discuss your experiences in the online business strategy course.

You will not be paid to participate in this study and your participation is confidential. Study information will be kept in a secure location. All identifiable data will be removed from responses and your identity will be protected through the use of a pseudonym. The
results of the study may be published or presented at professional meetings, but your identity will not be revealed. To ensure this information remains confidential, you will be asked to choose a name to attach to your survey and interview responses.

Participation in this research study is voluntary. Participation will not impact your membership in [redacted]. You are free not to participate by excluding your data or declining to participate in the data collections. You may also stop participating at any time, for any reason without negative consequences and your grade in the course will not be affected. In the event that you do withdraw from this study, the information you have already provided will be kept in a confidential manner. If you have any questions about your rights as a research subject or wish to withdraw from the study you can contact myself at gbanksjr@email.sc.edu.

With kind regards,

George D. Banks-Weston
APPENDIX B

ONLINE STUDENT CONNECTEDNESS SURVEY

Demographic Data

1. What is your race/ethnicity?
2. What is the highest degree or level of education you have completed?
3. What is your current industry and occupation?
4. How long have you worked in that industry?
5. How long have you been a member of [redacted]?

Online Social Connectedness Survey (Presurvey)

The following survey includes 19 questions to assess how socially connected you feel other members since joining [redacted]. Please specify your answer to these statements by using the following rating scale.

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Disagree</td>
<td>Disagree</td>
<td>Neither Agree nor Disagree</td>
<td>Agree</td>
<td>Strongly Agree</td>
</tr>
</tbody>
</table>

Comfort

1. If/when I need to, I ask for help from other members.
2. I feel comfortable expressing my opinions and feelings with other members.
3. I feel comfortable introducing myself to other members.
4. I effectively communicate in the course.
5. I feel comfortable asking other members for help.
6. I had no difficulty with expressing my thoughts to other members.
7. I feel the leadership created a safe environment in which I could freely express myself.
8. I feel comfortable as a member of [redacted].

Community

9. I feel emotionally attached to others in [redacted].
10. I spend a lot of time with other members.
11. Other members know me quite well.
12. I feel that other members depend on me.
13. I’ve easily made acquaintances through participation in [redacted].
14. I have gotten to know some of the other members and leaders very well.

Interaction and Collaboration

15. I relate my work to others’ work in [redacted].
16. I discuss my ideas with other members.
17. I collaborate with other members.
18. I work with other members.
19. I share information with other members.

Online Social Connectedness Survey (Postsurvey Version)

The following survey includes 19 questions to assess how socially connected you felt to other members participating in the online business strategy course offer through The Prominence Association for women. Please specify your answer to these statement by using the following rating scale.
The following questions relate to how social connected you felt to other members and leadership during the online business strategy course.

**Comfort**
1. If/when I needed to, I (asked) for help from other members.
2. I felt comfortable expressing my opinions and feelings with other members.
3. I felt comfortable introducing myself to other members.
4. I effectively communicated in the networking strategy and career development course.
5. I felt comfortable asking other members for help.
6. I had no difficulty with expressing my thoughts to other members.
7. I felt the leadership created a safe environment in which I could freely express myself.
8. I felt comfortable in the online business strategy course.

**Community**
9. I felt emotionally attached to others participating in the online business strategy course.
10. I spent a lot of time with other members.
11. Other members have gotten to know me quite well during the online business strategy course.
12. I felt that other members depended on me.
13. I easily made acquaintances in the online business strategy course.
14. I have gotten to know some of the other members and supervisor(s) very well.

**Interaction and Collaboration**

15. I related my work to others’ work in the online business strategy course.

16. I discussed my ideas with other members.

17. I collaborated with other members.

18. I worked with other members.

19. I shared information with other members.
APPENDIX C

TECHNOLOGY USE SURVEY

Technology Use Survey (Presurvey / Postsurvey Version)

The following questions are related to how you are using the virtual collaboration tools available to you in the online business strategy course. You will be asked three questions regarding the use of the virtual collaboration tool, then will specify your use of the tool using the following scale:

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never Used</td>
<td>Rarely Used</td>
<td>Occasionally Used</td>
<td>Used a Moderate Amount</td>
<td>Used a Great Deal</td>
<td></td>
</tr>
</tbody>
</table>

1. Indicate your frequency of use of each of the following virtual collaboration tools available to you during the online business strategy course.
   
a. Facebook Groups
   
b. Facebook Messenger
   
c. Zoom Conferencing
   
d. E-mail
   
e. Google Drive

2. Indicate your frequency of use of each of the following virtual collaboration tools as it relates to working with other members to develop and execute your online business strategy course.
   
a. Facebook Groups
b. Facebook Messenger
c. Zoom Conferencing
d. E-mail
e. Google Drive

3. Indicate your frequency of use of each of the following virtual collaboration tools as it relates to sharing knowledge and information with other members during the online business strategy course
   a. Facebook Groups
   b. Facebook Messenger
c. Zoom Conferencing
d. E-mail
e. Google Drive
APPENDIX D

SEMI-STRUCTURED INTERVIEW PROTOCOL

Opening Script:
Hello! My name is George Banks-Weston and I’m a doctoral student conducting research in pursuit of my Doctor of Education Degree in Education at the University of South Carolina. Thank you for taking the time to talk with me today. The purpose of this interview is to learn more about your experiences participating in the online business strategy course through [redacted]. I am exploring how you are collaborating with other members and how technology was used throughout the 8-week online business strategy course. There are no right or wrong answers, or desirable or undesirable answers. I would like you to feel comfortable saying what you really think and how you really feel. If it’s okay with you, I will be recording our conversation since it is hard for me to write down everything while simultaneously carrying an attentive conversation with you. Everything you say will remain confidential, meaning that only myself will be aware of your answers.

Upon completion of this interview, all identifiable data will be removed and only themes of conversation will be presented in research.

Administer Online Student Connectedness Survey (Presurvey Version).
Phase I (Presurvey)

The following questions pertain directly to your previous experiences and interactions with others in [redacted]. You will also be asked questions pertaining to your history with using virtual collaboration tools.

1. What attracted you to [redacted]?

2. What skills do you want to develop through your participation in the networking strategy and personal development program?

3. In what ways do you hope to build community with other members in the online business strategy course?

4. Describe how you have previously built community in a virtual environment?

5. In what ways do you wish to collaborate and interact with other members during this program?

6. Describe the types of activities you have found helpful when collaborating in a virtual environment?

7. Describe how you become comfortable using technology in a virtual environment?

8. What is your knowledge of virtual collaboration tools?
   a. Which virtual collaboration tools have you used in the past?
      i. Describe your experience using these virtual collaboration tools.
   b. Which virtual collaboration tools do you feel most comfortable with? Why?

Phase 2 (Check-In Meeting)

Script: Welcome back. This meeting is designed as a check-in to better understand the progress you are making in the online business strategy course through [redacted]. As a quick reminder, I am exploring how you are collaborating with other members and how
technology was used the course of the 8-week course. There are no right or wrong answers, or desirable or undesirable answers. The first set of questions will relate to how frequently you are using the technologies available to you in the course.

*Administer Technology Use Survey (Presurvey Version).*

**Script:** The next set up questions will be a follow-up to the questions asked in our initial meeting.

1. What skills, if any, are you developing through your participation in the networking strategy and personal development program?
2. Describe how you are building community in the online business strategy course?
3. Describe how you are collaborating and interacting with other members during this program?
4. In what ways do you feel you contributed to other members as they developed their networking strategy?
5. Which virtual collaboration tools do you feel most comfortable with?
6. Describe which tools you are finding helpful when building rapport with other members?
   a. Can you give me some examples of how you are using “Facebook Messenger” to build rapport with others during the course?
   b. Can you give me some examples of how you are using “Facebook Groups” to build rapport with others during the course?
   c. Can you give me some examples of how you are using “Dropbox” to build rapport with others during the course?
d. Can you give me some examples of how you are using “Zoom” to build rapport with others during the course?

e. Can you give me some examples of how you are using “Email” to build rapport with others during the course?

7. Describe which virtual collaboration tools are supporting the sharing of information within the online business strategy course?

a. Can you give me some examples of how you are using “Facebook Messenger” to share information with others during the course?

b. Can you give me some examples of how you are using “Facebook Groups” to share information with others during the course?

c. Can you give me some examples of how you are using “Dropbox” to share information with others during the course?

d. Can you give me some examples of how you are using “Zoom” to share information with others during the course?

e. Can you give me some examples of how you are using “Gmail” to share information with others during the course?

8. Describe which tools you have found helpful when interacting and collaborating with your accountability partners on your final presentation?

a. Can you give me some examples of how you are using “Facebook Messenger” to interact and collaborate with others during the course?

b. Can you give me some examples of how you are using “Facebook Groups” to interact and collaborate with others during the course?
c. Can you give me some examples of how you are using “Dropbox” to collaborate with others during the course?

d. Can you give me some examples of how you are using “Zoom” to collaborate with others during the course?

e. Can you give me some examples of how you are using “Gmail” to collaborate with others during the course?

**Concluding Script:** We have reached the end of this interview and I would like to review what we have discussed and address any outstanding questions or concerns you may have. Are there any final questions or feedback you would like to provide? I appreciate you taking the time to participate and share your experiences participating in the online business strategy course. As I mentioned at the beginning of today’s interview, your responses will remain confidential. Your identity will be protected through the use of a pseudonym and any identifiable data will be removed. If you have any additional questions, I have provided my contact information. Please do not hesitate to get in touch.

**Phase 3 (Post-Test)**

**Script:** Welcome back. Better understand the progress you are making in the online business strategy course through [redacted]. As a final reminder, I am exploring how you are collaborating with other members and how technology was used throughout the online business strategy course. There are no right or wrong answers, or desirable or undesirable answers. First, we will revisit the survey questions you responded to in the initial meeting, as well as the technology use questions you answered at the check-in meeting. Following this, I will ask you a series of open-ended questions about your experience in the course. Now that we’ve completed the final version of the social
connectedness survey, we will now move on to open-ended questions about your experiences in the course.

*Administer Online Student Connectedness Survey (Postsurvey Version).*

*Administer Technology Use Survey (Postsurvey Version).*

1. What skills do you believe you were able to develop as a result of the online business strategy course?

2. What was the most rewarding part of participating in this online business strategy course?

3. What is your understanding of virtual collaboration and virtual collaboration tools now that you’ve completed the course?

4. Describe how you built rapport with other members and got to learn more about them?

5. What technology did you leverage to interact and collaborate with other members during the course?
   a. Can you give me some examples of how you used “Facebook Messenger” to interact and collaborate with others during the course?
   b. Can you give me some examples of how you used “Facebook Groups” to interact and collaborate with others during the course?
   c. Can you give me some examples of how you used “Google Drive” to interact and collaborate with others during the course?
   d. Can you give me some examples of how you used “Zoom” to interact and collaborate with others during the course?
e. Can you give me some examples of how you used “Email” to interact and collaborate with others during the course?

1. Which of these technologies did you find most helpful? Why?

6. Describe your experience working with your accountability partners during the 8-week course?

7. What technology did you leverage to interact and collaborate with your accountability partners on your final presentation?

f. Can you give me some examples of how you used “Facebook Messenger” to interact and collaborate with others during the course?

g. Can you give me some examples of how you used “Facebook Groups” to interact and collaborate with others during the course?

h. Can you give me some examples of how you used “Google Drive” to interact and collaborate with your accountability partners during the course?

i. Can you give me some examples of how you used “Zoom” to interact and collaborate with your accountability partners during the course?

j. Can you give me some examples of how you used “Email” to interact and collaborate with your accountability partners during the course?

1. Which of these technologies did you find most helpful? Why?

8. Can you give me examples of any other activities or tasks that aided in the completion of your final presentation?

9. Describe how you shared knowledge and/or information during the online business strategy course?

10. What technology did you utilize to support the sharing of information or knowledge?
a. Can you give me some examples of how you used “Facebook Messenger” to share information with others during the course?

b. Can you give me some examples of how you used “Facebook Groups” to share information with others during the course?

c. Can you give me some examples of how you used “Dropbox” to share information with others during the course?

d. Can you give me some examples of how you used “Zoom” to share information with others during the course?

e. Can you give me some examples of how you used “Gmail” to share information with others during the course?

9. What do you wish you had learned more about while participating in the networking strategy and personal development program?

**Concluding Script:** We have reached the end of this interview and I would like to review what we have discussed and address any outstanding questions or concerns you may have. Are there any final questions or feedback you would like to provide? I appreciate you taking the time to participate and share your experiences participating in the online business strategy course. As I mentioned at the beginning of today’s interview, your responses will remain confidential. Your identity will be protected through the use of a pseudonym and any identifiable data will be removed. If you have any additional questions, I have provided my contact information. Please do not hesitate to get in touch.