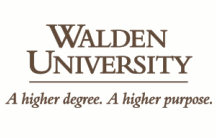

2018

Strategies of Minority Female Technology Entrepreneurs to Obtain Venture Capital Funding

Tamu Petra Browne
Walden University

Walden University

College of Management and Technology

This is to certify that the doctoral study by

Tamu Browne

has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
the review committee have been made.

Review Committee

Dr. Erica Gamble, Committee Chairperson, Doctor of Business Administration Faculty

Dr. Kevin Davies, Committee Member, Doctor of Business Administration Faculty

Dr. Scott Burrus, University Reviewer, Doctor of Business Administration Faculty

Chief Academic Officer

Eric Riedel, Ph.D.

Walden University

2018

Abstract

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by

Tamu Petra Browne

MS, Duquesne University, 1999

BS, University of the West Indies, 1997

Doctoral Study Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Business Administration

Walden University

December 2018

Abstract

Less than 1% of minority women receive venture capital funding for technology enterprises. The purpose of the multiple case study was to explore the strategies used by Black female entrepreneurs to obtain venture capital funding for their technology businesses in the United States. The conceptual framework for the study was the social network theory of entrepreneurship. Data were collected through semistructured interviews with 5 Black female entrepreneurs who founded technology ventures in the United States. Journaling before and after each interview aided the methodological triangulation, which ensured validation. Yin's data analysis process was used, and the data were reviewed, codes determined, emerging themes noted, and iterative explanation building undertaken. The main themes emerging from the analysis of the data were the participation in pitch competitions, the importance of networks, and communication. The findings may contribute to social change because other minority female, technology entrepreneurs can use the strategies of the participants as a model in their quest to receive venture capital funding. An increase in the number of minority women who receive venture capital funding and engage in high-growth entrepreneurship may result in an improved standard of living for the women and their families. Society could also benefit from a more diverse pool of technological innovations.

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Dedication

I dedicate the study to my children, who have had to adjust and assume more responsibilities, as I invested years of my life to the doctoral journey. I wish to also thank the close circle of friends who cheered me on and bolstered my spirits during this challenging phase. I dedicate this as well to my mother, who is a model for strength and resilience.

Acknowledgments

I wish to acknowledge my Chair Dr. Erica Gamble, who provided life changing advice during this process and ceaseless encouragement. I wish to also thank Dr. Kevin Davies for his pointed critiques that allowed me to address opportunities for improvement with efficiency. I acknowledge my University Research Reviewer, Dr. Burrus for his quality control role. I wish to thank the entire Walden community.

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Section 1: Foundation of the Study

The number of technology startups continues to grow at an increasing rate. Technology ventures and the innovations their employees create continue to disrupt industries and change the global business and cultural landscapes. The demographic characteristics of technology founders are primarily homogeneous -- White men (Tinkler, Bunker Whittington, Ku, & Davies, 2015). Women, particularly minority women, remain underrepresented in the high-growth technology industry and continue to establish ventures in low-growth sectors (Carter, Mwaura, Ram, Trehan, & Jones, 2015).

Background of the Problem

Minority women, and specifically Black women, have founded less than 1% of technology enterprises (Isaac, Singh, & Abbey, 2014). The venture capital industry is a component of the entrepreneurial ecosystem as venture capitalists seek to invest in high-growth ventures. On the demand side, entrepreneurs seek out venture capitalists to fund their technology enterprises. The demographic composition of the venture capital industry mirrors that of the technology industry. A significant percentage of venture capitalists are White and male (Alsos & Ljunggren, 2013).

The negligible number of technology ventures owned by minority women has resulted in a paucity of empirical research on the strategies they employ to obtain venture capital funding. The injection of venture capital funding into entrepreneurial enterprises can act as a catalyst for improved firm performance

(Cumming, Knill, & Syvrud, 2016; Guo, Jiang, & Mai, 2015). An increase in the number of minority female founders of technology businesses who obtain venture capital can help close the revenue-earning gap between male and female entrepreneurs and increase the diversity of the technology industry.

Problem Statement

Women business founders are underrepresented in the technology industry and minority women, in particular, receive disproportionately less external equity financing, constraining the growth of technology startups (Marlow & Mcadam, 2013; Wiederhold, 2014). Brooks, Huang, Kearney, and Murray (2014) found that 32% of the venture capitalists invested in female-owned businesses while 68% invested in male-owned ventures with identical funding presentations. The general business problem is that some female entrepreneurs are not able to fund technology ventures. The specific business problem is that some Black female entrepreneurs lack the strategies to access venture capital to fund technology businesses.

Purpose Statement

The purpose of this qualitative multiple case study was to explore the strategies that Black female entrepreneurs who own technology businesses use to obtain venture capital funding. The targeted population consisted of five Black female owners of technology businesses located in the United States who obtained venture capital funding for their businesses. The population was appropriate as the female entrepreneurs had successfully implemented strategies to obtain venture capital funding for the technology businesses. The implication for positive social change includes the potential to increase

the number of Black female-owned entrepreneurial ventures. Access to venture capital funding for technology ventures may benefit a community by providing more employment opportunities, which may improve the vitality of the economy on a macrolevel.

Nature of the Study

A qualitative methodology was the research method of choice for this study. The qualitative method is useful when researchers require explanations that are difficult to quantify. Qualitative research is investigative in nature, occurs in a natural setting, and provides researchers with a pathway for developing a holistic explanation of particular phenomena (Cronin, 2014; Yin, 2014). The phenomenon in the study was the strategies of Black female entrepreneurs to obtain venture capital to fund technology businesses. The qualitative research method was suitable for the exploratory nature of the inquiry and the research question. Quantitative research was not applicable to the study as the research question did not support a positivist epistemological orientation (see Lester & O'Reilly, 2015; Spector, Rogelberg, Ryan, Schmitt, & Zedeck, 2014). The exploration of the research question did not require that I use any numerical measurement of variables nor conduct any statistical data analysis. The mixed method design was not appropriate for the study as qualitative inquiry was sufficient to answer the research question (see Sparkes, 2015).

I used a case study design in this study. The case study design was appropriate as its use by the researcher facilitates an in-depth investigation of a contemporary phenomenon within its natural context, which is the firm (Yin, 2014). I

selected a case study design to explore the contemporary phenomenon of venture capital funding of technology businesses. A phenomenological design was not applicable to the study as I sought to explore the lived experiences of the female entrepreneurs participating in the study. A phenomenological design was not appropriate for the business context of the study. Ethnographic design was not applicable as the purpose of the study was not to explore the cultural norms of a group. Researchers use phenomenological and ethnographic designs to explore experiential phenomena and interpret the cultural experiences and norms of a group respectively, which were not appropriate for the study (O'Gorman, MacLaren, & Bryce, 2014; Shim & Santos, 2014).

Research Question

What strategies do Black female entrepreneurs use to receive venture capital funding for technology businesses?

Interview Questions

1. What strategies did you use to obtain venture capital funding for your business?
2. Why did you choose the strategies you used to obtain venture capital for your business?
3. What was the process you used to access the venture capitalists?
4. What challenges did you face in the process of attempting to receive funding?
5. How did you overcome these challenges?
6. What else would you like to share regarding strategies for venture capital funding that we have not discussed?

Conceptual Framework

The conceptual framework for this study was the social network theory of entrepreneurship posited by Aldrich and Zimmer (1986). Aldrich and Zimmer advanced the theory as an explanation for how social relationships and linkages facilitated or constrained entrepreneurial opportunities. The main propositions underlying the framework were that indirect linkages are more beneficial to entrepreneurs than direct linkages. Aldrich and Zimmer purported that the greater the centrality and reachability of indirect ties in the social network, the greater the opportunities available to the entrepreneur, as entrepreneurs with more diverse networks have a wider scope of opportunities. Aldrich and Zimmer concluded that an entrepreneur's use of social networks facilitates or constrains an entrepreneur's access to resources. The social network theory of entrepreneurship is applicable to the study as the propositions serve as a possible framework to explore the strategies that Black female entrepreneurs use to obtain venture capital funding for technology businesses.

Operational Definitions

Social capital: Social capital is the potential and actual resources available through the network of relationships with others that individuals forge (Nahapiet & Ghoshal, 1988).

Social network: A social network comprises of all individuals connected to one another through direct or indirect relationships (Aldrich & Zimmer, 1986).

Ties: Ties are the nature of the relationships between individuals. Individuals may have close relationships or strong ties or distant relationships -- weak ties (Granovetter, 1973).

Assumptions, Limitations, and Delimitations

Assumptions

Assumptions are assertions by a researcher relevant to the study that the researcher believes to be true but cannot prove (Hudlund-de Witt, de Boer, & Boersema, 2014). The assumptions that underpinned the study are that the study's participants did not conceal the existence of a male cofounder and the participants provided honest and accurate responses. The final assumption was that the respondents were cognizant of the strategies used to obtain venture capital funding and could articulate those strategies.

Limitations

Research limitations represent the shortcomings of a study and the implications of those weaknesses on the study's rigor and validity (Marshall & Rossman, 2016). The limitations of the study included the geographic location, the participant's race, the sample size, and the research design. The study's population was geographically restricted to the United States, which limits the generalizability of the findings. The participants' strategies may not be representative of the strategies employed by other minority female owners of technology ventures.

Delimitations

Delimitations refer to the scope and boundaries of the study (Marshall & Rossman, 2016). One delimitation of the study is that the sample consisted of five

entrepreneurs. Additionally, entrepreneurs who are not female or Black were excluded from the study. Geographical location was another delimiter of the study as the participants' ventures were in the United States.

Significance of the Study

The study is of value to the practice of business because an inquiry into the venture capital funding ecosystem may provide insights into the operations of the venture capital market. Female entrepreneurs may find that the extant literature presented in the study can improve their grasp of the complexities of the venture capital industry and the inherent challenges for women entrepreneurs. Additionally, women who own technology ventures may use the study's findings as a framework to obtain venture capital funding, as they can model the strategies used by the participants.

The implications for positive social change are that Black female entrepreneurs may obtain more venture capital funding for technology businesses, which may increase the wealth and quality of life in Black households and communities. An increase in the number of technology ventures owned by Black women could catalyze the entrepreneurial intentions of a younger generation of minority females, specifically in the technology industry. The increase in entrepreneurial intention may ultimately result in an increase in the number of Black female technology entrepreneurs and hence an upsurge in technology innovations that benefit society.

A Review of the Professional and Academic Literature

Opening Narrative

The purpose of the qualitative case study was to explore how minority female owners of technology businesses obtain venture capital. The professional literature review includes an analysis and examination of secondary data, including reports and statistics on the venture capital industry to identify trends and anomalies in the data. The review of academic literature includes a review of current scholarly peer-reviewed journal articles published within the last 5 years. The review of literature on the social network theory of entrepreneurship, which was the conceptual framework for the study, included a review of the seminal work of the theorists Aldrich and Zimmer (1986) and the work of other researchers who have explored the social networks of entrepreneurs.

The Walden library databases and Google Scholar were the primary sources for retrieving peer-reviewed articles. The Walden database search included ScienceDirect, Sage Premier, Business SourceComplete, and Emerald Management Journals. The key search terms that yielded the literature included in the review were *venture capital*, *female entrepreneurship*, *venture capital and entrepreneurship*, *venture capital and performance*, *venture capital and growth*, *venture capital and value added*, *entrepreneurship and women,* and *venture capital and growth.* Additional search terms included *social networks, social capital, social networks and entrepreneurship, social capital and entrepreneurship, African American entrepreneurship, women and social capital,* and *minority women and entrepreneurship*. The searches yielded approximately

400 sources. Eighty-five percent of the studies retrieved and included in the literature review are less than 5 years old.

The literature review is organized into the following sections: (a) a discussion of the role of venture capital in entrepreneurship, (b) a review of the extant literature on the nature of women-owned businesses, (c) an outline of the characteristics of ventures owned by minority women, (d) a review of the literature on social networks and the role of social networks in the entrepreneurial process, and (e) the effect of social networks on women-owned businesses. The purpose of the study was to explore the strategies employed by minority female owners of technology businesses to obtain venture capital funding. The conceptual framework for the study is the network theory of entrepreneurship advanced by Aldrich and Zimmer (1986).

Transition

The literature review commences with a discussion of the role of venture capital in entrepreneurship and a review of the extant literature on the nature of women-owned businesses. Sections on the characteristics of ventures owned by minority women, a review of the literature on social networks, and the role of social networks in the entrepreneurial process follow. The literature review concludes with a presentation of the extant literature on the effect of social networks on women-owned businesses.

Venture Capital and Entrepreneurship

Venture capital (VC) investment is a catalyst for economic growth as it fuels new venture creation, particularly in research and development intensive industries (Colombo, Cumming, & Vismara, 2016). The positive relationship between VC ecosystems and

economic growth is evident in emerging markets like China. Pan, Zhao, and Wójcik (2016) advanced that VC investment spurred growth in the high-tech industry and hence the regional economies of China. Obrimah (2016) examined the effect of venture capitalists' information production activities on new ventures and found that the initial public offering (IPO) pricing of non-VC-backed and VC-backed firms increased as a result of venture capitalists' involvement. Obrimah also posited that venture capitalists' activities increased the size and efficiency of stock markets and ultimately benefited economic development.

Researchers including Dutta and Folta (2016) have reported that VC financing is critical to the operational viability of entrepreneurial businesses in high-growth industries. The risks associated with new entrepreneurial ventures coupled with the significant information asymmetry and undercollateralization primarily associated with technology start-ups restrict the availability of financing from the banking industry (Balazs & Patricia, 2015). The challenges entrepreneurs face to obtain debt financing from risk-averse bankers have increased the significance of VC funding, particularly for innovative technology companies that have high capital requirements to operate and grow (Balazs & Patricia, 2015; Brander, Du, & Hellmann, 2015; Colombo et al., 2016; Savaneviciene, Venckuviene, & Girdauskiene, 2015). Baraton and Léon (2016) found that entrepreneurs' inability to obtain capital may create a barrier for entrepreneurs aspiring to enter high-growth sectors like technology, which have high entry costs, resulting in entrepreneurs initially entering an alternative industry with lower entry costs.

Venture Capital and Firm Performance

The literature on the effect of VC funding on the performance of VC-backed firms is extensive. However, the literature does not coalesce around the idea that VC financing has a positive influence on the innovation, growth, and the financial performance of entrepreneurial ventures. Researchers who have studied the effect of VC funding on firm performance have focused primarily on the United States, Europe, and China VC ecosystems and have found mixed results.

Researchers who have found a positive relationship between VC funding and firm performance include Colombo and Murtinu (2017). The researchers found in their longitudinal study of 759 VC-backed and 7,611 non-VC-backed European firms in the high-tech manufacturing and services industries that the VC funded businesses recorded significantly higher levels of sales. Paglia and Harjoto (2014) similarly found that VC financing had an immediate, positive effect on the net sales and employment growth on firms in a venture capitalist's portfolio. Some researchers have found that the effect of VC on firm performance is contingent upon certain factors. Gerasymenko, De Clercq, and Sapienza (2015) found a direct relationship between the scope of venture capitalists' involvement and the performance of portfolio companies. Additionally, the researchers found that the positive effect increased when the venture capitalists recruited an outside CEO to manage the portfolio enterprises. Bringmann, Vanoutrive, and Verhetsel (2016), in their study of VC-backed Belgian firms, found that it was weak network ties that increased the growth of portfolio companies. Bringmann et al. noted that when local VCs

formed relationships with foreign investors, this resulted in the improved performance and growth of the portfolio ventures.

Sources of venture capital and firm performance. The source of VC funding may provide a moderating effect on the performance of financed firms. A stream of literature exists that compares the effect on firm-performance of public VC, that is synonymous with government venture capital (GVC) to that of independent venture capital (IVC) funding. Many of the researchers in this stream revealed that IVCs exerted a significantly greater positive effect on the performance of funded firms than GVCs (Brander et al., 2015; Grilli & Murtinu, 2014; Munari & Toschi, 2015). Munari and Toschi (2015), who studied 628 VC-backed firms in the United Kingdom, found that 26.4% of the IVC portfolio firms in the study were acquired by investors compared to only 22% of GVC funded firms.

Some researchers have proposed explanations for the underperformance of businesses backed by government venture capitalists when compared to firms backed by IVCs. Colombo et al. (2016) reasoned that GVCs lacked the appropriate skills required to provide added value to the firms in their portfolios, while Munari and Toschi (2015) posited that GVC fund managers are less likely to attract and retain experienced private investors with the requisite skills who can provide quality value-adding services. However, Bertoni and Tykvová (2015) found in their study of European biotechnology companies that when independent venture capitalists and government venture capitalists collaborated through syndication, the result was a positive complementary effect on firm innovation and invention. The findings support those of Cumming, Grilli, and Murtinu

(2017) who found that although GVCs did not positively affect the exit performance of funded firms compared to those firms funded by IVCs, the collaboration of IVCs and GVCs created a positive effect on the exit performance of the enterprises, comparable to the positive IVC venture capital funding effect.

Research on the international syndication of VC firms and the syndication's effect on the performance of portfolio firms occupies a small space in the discourse on VC funding. The findings of most studies on the effect of cross-border VC syndication on the performance of firms indicate a positive relationship on enterprise performance. Scholars including Chemmanur, Hull, and Krishnan (2014) and Bertoni and Groh (2014) found that ventures that received funding from international and domestic VC syndicates outperformed those funded by domestic or international venture capitalists and had more successful exits. Meanwhile, Devigne, Manigart, and Wright (2016) found in their study of 684 European technology companies funded by venture capitalists that companies that received funding from cross-border investors terminated unsuccessful investments more efficiently than domestic investors who tended to escalate their commitment to failing ventures.

Venture Capital Funding and Firm Innovation

A review of the literature on VC funding and its effect on the innovation of funded firms reveals a complex relationship. Although Dutta and Folta (2016) found that venture capitalists contributed positively to the innovation rates of portfolio firms, the findings in the extant literature on the topic are mixed. The study of VC funded firms in 17 European countries by Faria and Barbosa (2014) revealed a positive relationship

between VC funding and innovation with patenting activity used as the proxy for innovation. However, Faria and Barbosa found that the significance of the positive effect on innovation occurred primarily at the later stage in the business' life cycles. The researchers purported that VCs were less risk averse at the later stage of the business life cycle as the innovations were no longer novel. Dutta (2015) advanced, instead, that the degree of innovation was related to the stage of the VC fund's life. Dutta found in his study of VC-backed bio-technology firms that VCs invested in exploratory innovation in the early stages of the life of the VC fund but switched to an exploitation approach to secure a return on investment when the end of the fund's life was imminent.

Tian and Wang (2014) introduced the construct of failure tolerance of VCs as an antecedent for innovation in firms funded by venture capitalists. Tian and Wang found a positive relationship between the degree of failure tolerance of venture capitalists and the innovation of the VC-funded public companies. The construct of failure tolerance was also analyzed by Chemmanur, Loutskina, and Tian (2014) in the context of corporate venture capitalists' (CVC) influence on the innovation of their portfolio firms. The findings indicated that CVCs exhibited more tolerance for failure than IVCs. CVCs' high tolerance for failure resulted in greater innovation output of CVC-backed firms compared to IVC-backed ventures. Chemmanur et al. found that CVC-backed firms produced 26.9% more patents and received 17.6% more patent citations than firms funded by independent venture capitalists. However, although more innovative, CVC-funded firms were less profitable than IVC funded firms. Lahr and Mina (2016) presented contrary findings. The researchers found in their analysis of 940 VC funded enterprises in the

United States and the United Kingdom that the VC's effect on increased innovation through patenting was insignificant. Lahr and Mina posited that any improvement of innovation performance of VC financed firms measured by patenting activity was a result of the selection effect and not the treatment effect. Lahr and Mina proposed that venture capitalists most often selected more innovative firms in which to invest to quickly recoup their investments.

Venture Capitalists and Value-Added Services

Venture capitalists' contributions to the enterprises they invest in extend beyond an injection of capital. Venture capitalists provide many value-added services including professionalization, technological, and managerial support to firms in their portfolios (Savaneviciene et al., 2015). Bernstein, Giroud, and Townsend (2016) found in their study of VC backed companies in the United States' airline industry, that there was a positive relationship between VCs involvement and rate of innovation and successful exits of the companies.

There is a growing body of literature that compares the efficacy of the value-added services of independent venture capitalists and government venture capitalists (Bertoni, Colombo, & Quas, 2017). Mason (2016) noted in his critique of government VC in the United Kingdom's peripheral regions that government venture capitalists were ineffective at adding value to the firms in their portfolios. Mason reported deficiencies in GVC's due diligence, domain knowledge, and quality of the deals they obtained for entrepreneurs (known as deal flow). Alperovych, Hübner, and Lobet, (2015) found in their study of 515 firms in Belgium funded by GVCs that three years post-investment, the

founders of GVC-funded ventures reported 10% less enterprise productivity than the founders who received VC funding from private venture capitalists. Many researchers who have compared the effect of GVCs and IVCs on VC-funded firms have found GVCs to be less effective at adding value to the enterprises in their portfolios (Guerini & Quas, 2016). The extant literature on the value-added services provided by venture capitalists coalesces around the main themes of governance, signaling effects, and network access (Dutta & Folta, 2016).

Governance as a value-added service. Venture capitalists often exercise governance over their portfolio companies as a condition of the staged financing they provide, which is often tied to the achievement of certain milestones. The management teams of VC funded businesses are required to implement proper governance structures as a prerequisite to receiving subsequent rounds of funding (Hopp & Lukas, 2014). Researchers who have explored the effect of venture capitalists' intervention on the corporate governance of the enterprises in their portfolios, have primarily concluded that venture capitalists exert a positive effect on the governance mechanisms implemented by entrepreneurial management teams (Liao, Lu, & Wang, 2014; Di, Zhenlong, & Zhijun, 2014). Some researchers including Audretsch and Lehmann (2014) and Anokhin, Peck, and Wincent (2016) have posited that the board members that provide oversight to VC-backed firms play a significant role in ensuring the robust corporate governance of the enterprises.

Some researchers have found that the effect of venture capitalists' involvement on the governance of portfolio forms is not entirely linear, but instead is contingent upon

certain variables, including VC experience, VC syndication, VC selection criteria, and geographical location. Hopp and Lukas (2014) posited that the venture capitalists' monitoring frequency and intensity were contingent upon VC experience. In Hopp and Lukas' investigation of 2,373 VC transactions in Germany over the period of a decade, the researchers found that more experienced venture capitalists monitored investee firms less frequently than less experienced VCs. Hopp and Lukas concluded that the findings indicated that more experienced venture capitalists could provide more substantive oversight initially in the areas of role definition, milestone setting, and implemented more appropriate financial rewards than venture capitalists with less experience. Meanwhile, Gerasymenko and Arthurs (2014) found evidence in their study of 20 VC funds that the breadth of advising provided by VCs was contingent upon their forecast of the time it would take for the portfolio companies to exit by IPO. The VCs increased the breadth of their advisement the longer the forecasted time of the portfolio company to go public.

The literature is sparse on the value-added monitoring and governance activities of venture-backed firms outside of the United States and other developed countries (Cumming & Vismara, 2017; Khoury, Junkunc, Mingo, 2015; Schiehll, Ahmadjian, & Filatotchev, 2014). However, the few studies that researchers have conducted coalesce around the findings that the geographical location and the sophistication of the VC ecosystem influence the nature of governance activities undertaken by venture capitalists. Bonini, Alkan, and Salvi (2012) found that American and European VCs differed in the governance provided to investee businesses. American venture capitalists subjected firms in their portfolio to greater governance in the areas of executive compensation, CEO

hiring, employee incentives, board decisions, and appointments. However, European VCs focused on governance with respect to CEO hiring and investment planning. The findings of Bonini et al. converge with those of Bertoni, Colombo, and Quas (2015) who concluded that there existed significant differences between the investment patterns of European and the United States' venture capitalists. Although the VC ecosystem in emerging markets like Brazil is underdeveloped in comparison to that of the United States, VC funding had similar advantageous effects on the performance of venture-backed enterprises. Latini, Fontes-Filho, and Chambers (2014) found that venture capitalists' investment and value-added activities had a significant positive effect on the governance ratings of small and medium enterprises in Brazil.

The signaling effect of VC funding. An entrepreneur's success in obtaining VC for his or her business often has a positive signaling effect in the industry, which may result in more financially lucrative exit strategies (Otchere & Vong, 2016). Ragozzino and Blevins (2015) analyzed a 26-year sample of 3,600 VC-backed companies and found that the prominence of the venture capitalists and the total amount invested were strong predictors of a successful IPO exit. The researchers posited that the venture capitalist's status served as a positive signal for investors. Ragozzini and Blevins found a positive relationship between exit by acquisition and the number of venture capitalists funding the entrepreneurial firm. However, the researchers found that the number of venture capitalists investing in a company had no effect on the likelihood of an IPO issue. Obrimah (2016) purported that the VC funding process reduced information asymmetry in the industry because of the due diligence venture capitalists conducted. Obrimah

hypothesized that this reduction in information asymmetry resulted in higher valuations of companies funded by venture capitalists. However, Fitza and Dean (2016) reported that it was the VC's reputation that affected IPO pricing. The researchers found that the VC's identity and resulting status had a greater impact on underpricing than underwriters because of the VC's greater signaling effect.

Women-Owned Businesses

The number of businesses owned by women is growing globally (Shende, 2016). Statistics produced by the US Census Bureau in 2012 indicated that women owned 35.8 % of businesses in the United States compared to 28.8% in 2007. Minorities are fueling the growth in women-owned businesses (WOBs) in the United States. Businesses owned by Black women increased by 66.9% for the period under review, while businesses owned by Asian women increased by 43.3% according to the US Census Bureau. In the United Kingdom, 21% of small and medium enterprises were women-owned compared to 18% in 2012. However, in the United Kingdom, the number of businesses owned by minority and ethnic groups continues to decline from 6.2% in 2012 to 5% in 2015. However, De Vita, Mari, and Poggesi (2014) found that the developing nations of Brazil, Sub-Saharan Africa, and the Caribbean had high rates of female entrepreneurship nearing 50%.

The research on female entrepreneurship is not as abundant as the literature on male entrepreneurship, and is a relatively new stream of research compared to that of male entrepreneurship (Fayolle, Yousafzai, Saeed, & Henry, 2015; Sequeira, Wang, & Peyrefitte, 2016). A dearth of literature is especially evident on female entrepreneurship

in non-Western and developing nations (De Vita et al., 2014; Link & Strong, 2016; Naguib & Jamali, 2015). Henry, Foss, and Ahl (2016) in their review of the literature on female entrepreneurship found that publications on the topic were primarily published in lower-ranked journals which "clearly signals a ghettoisation of female entrepreneurship scholarship" (p. 232), the researchers opined. Researchers who have examined female entrepreneurship do so primarily through a gendered lens, as scholars have sought to compare male entrepreneurship with that of female entrepreneurship (Henry, Foss, Fayolle, Walker, & Duffy, 2015).

Researchers including Lee and Marvel (2014) have found that women-owned businesses (WOB) are smaller, have fewer assets, are less prone to growth, and underperform when compared to male-owned ventures. Langevang, Gough, Yankson, Owusu, and Osei (2015) found that in Ghana where female entrepreneurs outnumber male entrepreneurs, women-owned businesses had fewer employees and were less financially viable than ventures owned by men. However, Zolin, Stuetzer, and Watson (2013) dismissed the underperformance of female firms as a myth, having controlled for confounding variables including industry, the number of hours entrepreneurs worked, and previous entrepreneurial experience. The findings of the study revealed no difference in the performance of WOBs compared to business owned by men. Kalnins and Williams (2014) also found there to be no merit to the idea that WOBs underperform when compared to male-owned enterprises and found the opposite to be true. Kalnins and Williams used a dataset of one million to compare the survival rate of male-owned and female-owned ventures in the United States. The researchers found that male-owned

businesses did not survive longer in general than WOBs and that female-owned businesses survived longer in larger cities. Justo, DeTienne, and Sieger (2015) purported that the rate of failure of WOBs may be over-reported. The researchers posited that because female entrepreneurs exit entrepreneurship voluntarily in greater rates than men, the voluntary exits may be misclassified as business failures by researchers.

However, researchers presenting findings that diverge from the prevailing theme of WOBs underperforming in the female entrepreneurship literature are few. The literature is, however, replete with studies that have provided a myriad of explanations for the underperformance phenomenon of women-owned ventures. Researchers have cited industry choice, degree of risk aversion, and access to capital as fundamental determinants of the small size and the suboptimal performance of women's enterprises (Carter et al., 2015; Gomes, Santana, Araújo, & Martins, 2014; Mijid, 2017; Rey-Martí, Porcar, & Mas-Tur, 2015).

Women Entrepreneurs and Industry Choice

Women are underrepresented in high-growth industries such as technology, biotechnology, and manufacturing. Women-owned businesses exist primarily in the retail, service, health, and education industries where growth and profits remain comparatively suppressed (Business Innovation and Skills, 2013; Business Innovation and Skills, 2016; Zhu, Kara, Chu, & Chu, 2015). The concentration of WOBs in the low-growth sectors of the economy is a global phenomenon. Female entrepreneurs in the United States, the United Kingdom, Asia, Africa, and Europe cluster in these industries (Carter et al., 2015; Langevang, Gough, Yankson, Owusu, & Osei, 2015; Lee & Marvel,

2014; Shende, 2016; United States Census Bureau, 2012; Zhu et al., 2015). Lee and Marvel's (2014) study of the gender-performance relationship of 4,540 Korean ventures revealed that women established business significantly less often in high-tech manufacturing industries than male entrepreneurs. Similarly, in the German context, women established fewer businesses in high-growth industries such as construction and instead established ventures in greater numbers in the education and health sectors (Caliendo, Fossen, Kritikos, & Wetter, 2015).

Scholars have not extensively studied the persistent phenomenon of the absence of women from high-growth industries including technology. However, a few researchers have posited explanations for the paucity of female entrepreneurs in high-growth industries. Women are more often pushed into entrepreneurship as a survival mechanism, to increase their income, and to create a more effective work-family balance, and as such enter industries that have lower barriers to entry (Carter et al., 2015; Allen & Curington, 2014; Bhardwaj & Mittal, 2017; Lee & Marvel, 2014; Shende, 2016). Baraton and Léon (2016) advanced that in Madagascar necessity entrepreneurs chose to enter lower growth sectors because of the significant capital requirements to enter high-growth sectors. The technology industry is one such sector requiring high entry costs which may limit female participation.

Marlow and Swail (2014) have noted that many researchers have proposed a gendered perspective of the high risk-aversion of female entrepreneurs as an explanation for the dearth of women entrepreneurs in high-growth industries. The researchers in this stream apply a trait perspective to the topic and have argued that women are less

competitive and have a lower propensity for risk than men - characteristics the researchers purported deterred women from establishing ventures in rapidly growing industries. Bulanova, Isaksen, and Kolvereid, (2016) found a positive correlation between a female entrepreneurs' degree of self-efficacy and growth aspirations in women engaged in high-growth entrepreneurship (HGE). Neill, Metcalf, and York (2015) similarly purported that high-growth entrepreneurs had a heightened discover mindset. Neill et al. in their study of 165 women who owned high-growth ventures in the technology and biotechnology industries, found that the HGEs possessed high self-efficacy and a strong discover mindset which heightened opportunity perception. The researchers' findings lend some credence to the findings of Bulanova et al. that self-efficacy and growth orientation are prerequisites for high-growth entrepreneurship. Gupta, Goktan, and Gunay (2014) presented a more nuanced finding regarding the effect of the discover mindset on female entrepreneurs' evaluation of opportunities. Gupta et al. (2014) found that the presence of feminine or masculine stereotypical information moderated opportunity evaluation. Women reported higher opportunity evaluation when an entrepreneurial scenario included stereotypical feminine information. The implication of the finding is that women may perceive less opportunities in male-dominated industries like the technology industry and hence fewer female entrepreneurs choose to enter high-growth male-dominated industries. The findings of Gupta et al. converge with those of Coleman and Kariv (2014) who found that the female entrepreneurs with lower entrepreneurial self-efficacy (ESE) perceived there to be greater challenges than the women entrepreneurs with high ESE. However, De Vita et al. (2014) disputed the notion that an

entrepreneur's gender influenced the propensity for risk and self-efficacy. The researchers conducted a conceptual review of the literature on gender and entrepreneurship in developed and developing nations, and concluded that only marginal differences existed in the need for achievement, risk propensity, and self-efficacy between male and female entrepreneurs. Marlow and Swail (2014) advanced that scholars whose studies have presented the stereotype of women entrepreneurs as less growth-oriented and more risk-averse, have nurtured a pejorative discourse and over-simplification of the complexity of female entrepreneurship.

Minority Women and Entrepreneurship

There is a paucity of research on minority entrepreneurs (Link & Strong, 2016). The literature on minority women and entrepreneurship is sparse and is geographically focused on the United States and Africa. The scholarly research on Black women who are at the center of the study is limited. Welter, Baker, Audretsch, and Gartner (2017) advanced that the dominant discourse in the entrepreneurial literature is an archetypal representation of the successful entrepreneur as male and non-minority. Högberg, Scholin, Ram, & Jones (2014). Högberg et al. argued that the categorization of entrepreneurs by race and ethnicity by employees at Swedish business support centers reinforced societal stereotypes and hierarchical structures. Researchers who have delved into the topic of minority women and entrepreneurship have primarily done so through the lens of ethnic entrepreneurship (Carter et al., 2015; Romero & Valdez, 2016; Wang & Morrell, 2015). Some scholars including Carter et al. (2015) have characterized the female ethnic-minority entrepreneur as less successful than non-ethnic entrepreneurs.

Carter et al. posited that ethnic minority entrepreneurs including female ethnic entrepreneurs underperformed because of limited access to capital.

The findings of the studies on female minority entrepreneurs do not differ significantly from the findings of studies on women entrepreneurs in general. Although the number of Black women choosing self-employment continues to increase, the percentage of Black women who enter entrepreneurship remains lower than their percentage in the general population. The situation is reversed for white female entrepreneurs (Benson, 2016; Kogut, Luse, & Short, 2016). Although the number of businesses owned by Black women has increased over the past 40 years, the ventures remain small, undercapitalized, and are in low-growth industries like the service and retail sectors (Bates & Robb, 2016; Kogut et al., 2016; Reuben & Queen, 2015). Mora and Dávila (2014) found that ventures owned by minority women had a high failure rate of near 50% for the sample under study. Enterprises owned by Black women also underperform when compared to ventures owned by Black men. The women's businesses generated lower revenues, employed fewer people, and existed in lower-growth sectors than male-owned enterprises (Gibbs, 2014).

Researchers have posited various reasons for the phenomenon of underperformance of businesses owned by minority women. One hypothesis in the extant literature is that Black women often opt for entrepreneurship to circumvent limited employment opportunities (particularly ethnic minorities), and so engage in survival entrepreneurship and not high-growth entrepreneurship (Bates & Tuck, 2014; Gibson, Harris, Walker, & McDowell, 2014; Kogut et al., 2016; Mandipaka, 2014). However,

Adkins and Samaras (2013) found no significant difference in the in annual sales and the number of full-time employees of minority and non-minority female founders. However, the researchers found that minority-women founders perceived that they faced greater challenges than non-minority female founders in certain areas - including securing capital to establish or expand a venture, and effective networking. These perceptions by the minority female entrepreneurs in the Adkins and Samaras study, may inhibit the desire of minority-women entrepreneurs to seek out external financing and perpetuate the cycle of the undercapitalization of their enterprises. Adkins and Samaras opined that the perceived challenges of self-efficacy by minority female entrepreneurs might contribute to the enterprise underperformance of female minority entrepreneurs reported by researchers.

Women Entrepreneurs and VC Funding

Studies on women's access to VC funding are not prevalent in the extant entrepreneurship literature. However, the findings of most researchers in the stream are that women receive negligible amounts of VC funding compared to male entrepreneurs (Brush, Greene, Balachandra, & Davis, 2017; Paglia & Harjoto, 2014). The disparity is especially apparent for entrepreneurs of technology businesses who have high capital requirements which constrains the growth of women-owned technology ventures. The dearth of literature on women and VC funding, coupled with the dismal statistics on women obtaining VC for technology businesses provide compelling justification for the study.

Researchers have posited some explanations for the scant percentage of VC funding granted to women-owned businesses by venture capitalists. The homogeneity of

the VC industry and the homophilic practices of investors, hold precedence in the literature as antecedents of the dearth of VC funding obtained by female entrepreneurs. Alsos and Ljunggren (2013) noted that the male-dominated nature of the VC industry limited women's access to the VC networks. Paglia and Harjoto (2014) found that venture capitalists were more prone to invest in entrepreneurs who were demographically similar. The desire for homogeneity by venture capitalists, may mean that minority entrepreneurs and female entrepreneurs face challenges when seeking VC funding.

The findings of Tinkler et al., (2015) converge with those of Alsos and Ljunggren (2013) on the importance of social ties to women entrepreneurs who seek VC financing. Tinkler et al. in a simulated experiment uncovered gender bias among venture capitalists. However, the venture capitalists' bias extended only to women entrepreneurs with no technical experience. The researchers did not observe a gender bias against female entrepreneurs who possessed a technical background. Alsos and Ljunggren found that venture capitalists penalized women entrepreneurs with no prior entrepreneurial experience but ignored the absence of previous entrepreneurial experience of male entrepreneurs. The Malmström, Johansson, and Wincent (2017) study revealed more gender bias exhibited by Swedish GVCs. The researchers found that the language the VCs used to describe female entrepreneurs was pejorative. The investors often referred to a female entrepreneur's appearance with scant discussion of the female entrepreneur's experiences and qualifications. The GVCs never referred to the women as innovators as they did the male entrepreneurs, but chose to refer to the female entrepreneurs using gender pronouns. Kanze, Huang, Conley, and Higgins (2017) noted in their study of

interactions between venture capitalists and entrepreneurs at pitching competitions in New York, that the nature of the questions asked by the VCs disadvantaged the female entrepreneurs. The VCs asked the female entrepreneurs questions focused on the prevention of potential issues, while the questions posed to the male entrepreneurs were focused on promotion and growth of the venture. Alsos & Ljunggren (2017) noted that female entrepreneurs who seek VC funding may need to form alliances with men or partner with male entrepreneurs to signal legitimacy to VCs.

Minority entrepreneurs and VC funding. A paucity of literature exists on the topic of minority entrepreneurs and their access to VC funding. Isaac, Singh, and Abbey (2014) reported that Black Americans owned a disproportionately low number of businesses in the technology sector and received significantly less VC compared to other minority groups. Bates, Bradford, and Jackson (2017) explored the viability of minority-oriented VC funds. Bates et al. found that VCs reported a higher composite internal rate of return (IRR) for the minority-owned enterprises than the white-owned enterprises in their portfolios. The IRRs reported by the researchers were 16.3% and 4.2% respectively. However, Bates et al. (2017) purported that minority entrepreneurs remain excluded from mainstream VC funds, as the formation of ties to non-minority VCs eludes them.

***Minority female entrepreneurs and VC funding*.** A CB Insights (2010) report revealed that a mere 1% of Black founders of technology ventures received VC funding. Businesses owned by Black women may face a double penalty as financing constraints represent a significant barrier to minority and female-owned enterprises (Joshi, Inouye, & Robinson, 2017; Mijid, 2017). Additionally, minority women face challenges when

attempting to access the male-dominated VC network, and as a result remain underrepresented in the high-growth technology industry (Alsos & Ljunggren, 2013; Paglia & Harjoto, 2014). The desire for homophily and the resulting co-ethnic matching between venture capitalists and investees remain as impediments to Black women seeking VC funding (Bengtsson & Hsu, 2015).

Scholars have purported demand and supply side arguments for the dearth of VC support for minority, women-led businesses. Some researchers have posited that the negligible number of women in general and minority women specifically, on VC boards perpetuates homophily in funding practices by venture capitalists (Mollick & Robb, 2016; Wiederhold, 2014). Additionally, the disproportionately low percentage of minority women engaged in STEM education and entrepreneurship (Small Business Association, 2010) may have suppressed the level of VC funding disbursed to minority female entrepreneurs.

Social Network Theory

Social Network Structure

The social networks of entrepreneurs are critical to the growth and success of their ventures. The social network facilitates the entrepreneurs' access to resources, which they can leverage to establish and grow their enterprises (Costa and Galina, 2016; Leyden, Link & Siegel, 2014). The structure of networks holds primacy in the extant literature on social networks (Gulati & Srivastava, 2014; Liu, Sidhu, Beacom, & Valente, 2017). The seminal work by Granovetter (1973) although focused on the contribution of

social networks to the job seeking process and not the entrepreneurial process, created the foundation for subsequent studies on social networks in the entrepreneurial ecosystem.

Granovetter (1973) advanced that two categories of relationships (which he termed ties) comprised an individual's social network. Strong ties and weak bridging ties, the latter consisting of indirect contacts who are socially distant from the job seeker. Granovetter purported that weak ties created a bridge over which an individual accessed new ideas, resources, and information, to which strong ties did not provide access. Granovetter found that a job seeker received the most critical job information from his weak ties. Weak ties, Granovetter (1983) advanced were more effective than strong ones in providing novel and useful information, as those ties are more heterogeneous in nature, provide less redundant information, and are more efficient at accessing primary decision makers, hence the coining of the phrase the strength of weak ties by Granovetter (1973).

Granovetter's characterization of the composition of the social network into close and distant ties is not unique in the extant literature. Although the nomenclature may differ, other researchers have advanced a similar network structure. Uzzi (1997) found that the study's participants categorized weak ties as market relationships and strong ties as embedded ties, while Cao, Simsek, and Jansen (2015) and Moyes, Ferri, Henderson, and Whittam (2015) referenced bonding and bridging ties as synonymous to strong and weak ties respectively. Burt (1992) introduced structural holes to the discourse on social networks. Burt advanced that a network rich in structural holes, which he described as non-redundant ties, would be the most optimal to individuals for accessing diverse, novel, and useful information.

Contemporary researchers in the stream of the structure of social networks have advanced more nuanced models of social network structures. For instance, Obukhova and Lan (2013) proposed a distinction between potential and mobilized ties. The researchers purported that although ties may exist in an individual's network, he may not use those ties. It is plausible that given the findings of Obukhova and Lan that although entrepreneurs may cultivate networks, entrepreneurs may be ineffective at leveraging the networks for venture support.

Many of the researchers who have conducted studies on network structure in the twentieth-century found that centrality was an essential element in the structure of social networks. The centrality of an employee within the network was germane to an individual's leveraging of his network to obtain employment or career advancement (Freeman, 1978; Lin, Ensel, & Vaughn, 1981). Prestige and status in the actor's job network resulted in the network actor's ability to secure positions and job promotions for ties. Lin et al. (1981) found that the network actor's status at the workplace had a positive effect on the prestige of the job attained by the job seeker to whom he was weakly tied. The findings converge with the earlier findings of Laumann (1966) and Breiger (1974). Laumann and Breiger discovered that ties in a network were asymmetrical and that weak ties were most beneficial to job seekers when they were with organizational decision-makers or linked to other individuals at the firm's apex. Aldrich and Zimmer (1986) purported that centrality was also a critical dimension of entrepreneurial social networks.

Social Networks and Entrepreneurship

The Aldrich and Zimmer (1986) study married the research stream of social networks with the entrepreneurial stream of research. The resulting conceptual framework of the social network of entrepreneurship guided my analysis of the findings of the study. Aldrich and Zimmer purported that social relationships within networks facilitated or constrained entrepreneurial opportunities. The researchers advanced that the critical dimensions of networks were, density, which is the extensiveness of ties between individuals, reachability which refers to number of intermediaries between persons who are linked to each other, and the centrality of a person in a network, which is determined by the total distance between a focal person and others, and the number of individuals the central person can reach in the network. The dimensions are germane to the discourse as they underscore the fact that network structures are complex and the actors within networks are not homogeneously advantageous to the entrepreneur (Stroble, 2014).

The extant literature on the structure and effectiveness of entrepreneurial social networks is ubiquitous. Nahapiet and Ghoshal (1998) advanced that the ties or relationships that exist in social networks create social capital from which entrepreneurs may access resources. Researchers in the stream of the social networks of entrepreneurs have retained the typology of strong and weak ties. However, there is no consensus on the optimal composition of the ties in a network or the contribution of social networks and social capital to entrepreneurial performance.

In the entrepreneurial context, strong ties are individuals who are in the inner-circle of the entrepreneur, non-entrepreneurial, and include family and friends (Arregle et

al., 2015). Weak ties or indirect ties, are those individuals with whom the entrepreneur creates formal relationships, often through business networking events. Weak bridging ties are persons to whom the entrepreneur is tied indirectly, through another person in the network (ÇetİN, Fernandez-Zubieta, & Mulatero, 2016; Goerzen, 2017; Prasad, Naidu, Kinnera Murthy, Winkel, & Ehrhardt, 2013). The prevailing school of thought by researchers in the entrepreneurial network stream is that social networks are invaluable to entrepreneurs and essential to entrepreneurial success (Lans, Blok, & Gulikers, 2015; Leyden, Link, & Siegel, 2014).

Entrepreneurs, particularly nascent entrepreneurs, are often resource-poor and face liabilities of newness and smallness (Partanen, Chetty, & Rajala, 2014). Researchers including Grichnik, Brinckmann, Singh, and Manigart (2014) have posited that entrepreneurs may leverage their social relationships with other individuals to garner the resources required for entrepreneurial establishment and expansion. An entrepreneur's network can yield financial resources, human resources, customers, supply chain actors, and emotional support (Cao et al., 2015, Costa & Galina, 2016; Goerzen, 2017). However, all network structures are not identical in their advantage to the entrepreneur. The debate on the optimal structure of an entrepreneur's social network continues to rage. Findings on the relationship between network ties and entrepreneurial business success are inconclusive (Kim & Sherraden, 2014; Stam, Arzlanian, & Elfring, 2014).

Social Networks and Business Performance

Scholars have advocated that weak ties are more advantageous to entrepreneurs than strong ties (Granovetter, 1973). Some researchers have found that weak ties rather

than strong ones are germane to the entrepreneur's quest for resource acquisition and venture growth (Kreiser, Patel, & Fiet, 2013; Santarelli & Tran, 2013; Spiegel et al., 2016). Weak ties introduce nonredundant, diverse information into the entrepreneur's network and create bridges to other individuals who have access to additional resources (Aldrich & Zimmer, 1986). The entrepreneur's capacity to establish and leverage external relationships often enhances entrepreneurial creativity, innovation, and business performance (Perry-Smith, & Mannucci, 2015; Santarelli & Tran, 2013). Weak ties may yield entrepreneurs referrals, tangible resources, knowledge, and new distribution channels (Chen, Chang, & Lee, 2015; Ogasavara et al., 2016; Zhou, Zhang, Sheng, Xie, & Bao, 2014). Weak bridging ties are critical to entrepreneurs who seek resources to which they have no direct access, in a bid to grow their ventures. Zhang and Tan (2015) posited that networks rich in structural holes provide bridges to distant resources and serve as channels for resource acquisition by entrepreneurs. Scholars have revealed a direct correlation between weak ties in the form of formal business networks and positive venture performance (Kim & Sherraden, 2014; Zhu, Su, & Shou, 2015). However, the literature does not converge around the strength of weak ties as proposed by Granovetter (1973). Some researchers have found no correlation between weak ties and entrepreneurial profits (Kolstad & Wiig, 2013; Kozan & Akdeniz, 2014). Additionally, Scholten, Omta, Kemp, and Elfring (2015) advanced that weak bridging ties are most effective when the actor serving as the bridge understands how to act upon the information in both networks. Therefore, suggesting that weak ties may be limited in their ability to spur entrepreneurial performance.

Initially entrepreneurs' networks are often populated by strong ties - family and friends, as individuals have a propensity to create relationships with others who are similar to them, with whom they share a common set of beliefs and values, and who they know and trust (Arregle et al., 2015; Ren, Shu, Bao, & Chen, 2016). Researchers who have explored the topic of the effect of strong ties on entrepreneurship, have cited the importance of trust as the factor that governs the relationship. Trust between close, direct ties, allows entrepreneurs to yield more tangible resources, emotional support, advice, and usable knowledge than are accessible from individuals to whom they are weakly tied (Arregle et al., 2015; Fisher 2013; Wuebker, Hampl, & Wüstenhagen, 2015). Strobl (2014) also purported that trust was the best indicator of tie strength, and that the quality of the resources that entrepreneurs could access from ties was directly related to the degree of trust between the actors. Therefore, it is not uncommon for entrepreneurs to engage in homophily when structuring their networks, particularly when operating family businesses (Burt, 1992; Liu. Eubanks, & Chater, 2015; Perry-Smith, & Mannucci, 2015).

However, the empirical findings on the effect of kin relationships and other strong ties on the entrepreneurial process and venture performance are ambiguous (Arregle et al., 2015). Researchers have argued that family ties smother creativity and innovation, and are antecedents of operational inefficiencies. Group-think, information redundancy, and a dearth of new knowledge characterize the cohesive family network (Liu, Eubanks, & Chater, 2015; Santarelli & Tran, 2013; Shi, Shepherd, & Schmidts, 2015). Kreiser, Patel, and Fiet (2013) found an inverse relationship between an increase in tie strength and the founding activities of entrepreneurs suggesting that close relationships may

inhibit the efficiency of the initial start-up phase of entrepreneurship.

However, dissenting findings have emerged from other researchers who have countered the argument of some scholars, that family relationships and other strong ties have a negative effect on the performance of entrepreneurial ventures. Lans, Blok, and Gulikers (2015) found that strong bonding ties with family and friends provided entrepreneurs with pro bono advice, physical start-up assistance, and access to capital. Strong ties can also contribute to innovation and are germane for radical innovation commercialization and production expansion (Kozan & Akdeniz, 2014; Partanen et al., 2014). Chen et al. (2015) found that family ties contributed to improved information and resource availability in the Chinese context, while Prasad et al. (2013) found that female entrepreneurs with a family-centric network reported a small but positive relationship with venture growth. Tundui and Tundui (2013) reported an even greater, statistically significant association between support from family ties and business performance among Tanzanian female entrepreneurs. Tundui and Tundui found that the entrepreneurs who had received support and advice from family members were 14.7% more likely to experience an increase in business profits, while the entrepreneurs who did not receive family advice were 10.7% more likely to report a decrease in business profits. The nonwestern populations of the studies above, may mean that culture and geography can moderate the relationship between family ties in an entrepreneur's social network and enterprise performance (Prasad et al., 2013).

The moderating effect of culture and geography on strong ties is not unique to kin with whom the entrepreneur is networked. Light and Dana (2013) found in their study of

the Alutiiq people in Alaska, that social networks only advance entrepreneurship when supportive cultural capital exists. The findings converge with those of Huggins & Thompson (2015) and Motoyama and Knowlton (2017) who reported the moderating effect of geography and community cultures on entrepreneurial growth. Rooks, Klyver, and Sserwanga, (2016) also reported that the value of an entrepreneur's social network is contingent upon the cultural context.

Network heterogeneity and size. The mixed findings on the effect of strong and weak ties on entrepreneurial performance ushered in a stream of literature by researchers who focused on the importance of network heterogeneity in the entrepreneurial process. Wang and Chen (2016) cautioned that nascent entrepreneurs who were over-reliant on dense networks with strong ties suppressed firm competitiveness and innovation. The researchers noted that nascent entrepreneurs should focus on strategically cultivating a heterogeneous network comprised of "high-quality collaborators not on increasing the amount of collaborators with similar and homogeneous knowledge" (p. 188). Entrepreneurs who wish to benefit from the advantages proffered by weak and strong ties should strategically cultivate a heterogeneous network, that is dynamic in nature and based on the shifting needs of the entrepreneur's venture (Elfring, 2015; Moyes et al., 2015; Sullivan & Ford, 2014).

The call to entrepreneurs by some scholars to increase network heterogeneity may result in the burgeoning of the size of the entrepreneur's social network. The extant literature makes apparent that the addition of network relationships by entrepreneurs to increase the diversity of the resources available to them, have mixed results on venture

performance. The empirical research on the optimal size of entrepreneurial social networks yields no consensus. Some scholars have recorded no effect of network size on venture performance including Kolstad and Wiig (2013), while other researchers reported diminishing returns on business performance as the number of ties increased in the entrepreneur's network. Yoon, Lee, and Song (2015) found that performance measured by knowledge creation had diminishing returns as entrepreneurs increased their network size beyond a certain threshold. The findings converge with those of Xie, Gao, Jiang, and Fey (2015) who found there to be an inverted U relationship between the number of business ties and firm innovation. Innovation eventually began to flag in the Chinese ventures as the number of business ties increased. Additionally, the researchers reported that an increase in network size had a deleterious effect on integrative innovations, but that the negative effect was less significant on original innovations within the firms. The findings diverge, however, from those of Rauch, Rosenbusch, Unger, and Frese (2016) who discovered that large, diversified networks improved the performance of big firms in innovative industries, established in locales with robust financial markets

The diminishing returns associated with an increase in network size on venture performance, noted by some scholars, may be attributed to the cost to acquire and maintain the large numbers of diverse relationships borne by the entrepreneur (Parida, Patel, Wincent, & Kohtamäki, 2016). Semrau and Werner (2014) noted that the efforts required by the German entrepreneurs in their study to maintain high-intensity, quality relationships in extensive networks, resulted in diminishing marginal returns with regard to access to capital, knowledge, and information. However, Yu, Hao, Ahlstrom, Si, and

Liang (2014) found that it was network competence coupled with technological capability that positively impacted new product development performance. Yu et al. noted that an entrepreneur's prowess in developing and managing external network relationships is a significant contributor to firm performance. Meanwhile, Brand, Croonen, and Leenders (2017) posited based on their findings that network centrality improved the sales of high and medium performing businesses, while the performance of low performing businesses improved when the owners cultivated relationships with high performing entrepreneurs. Brand et al. (2017) also found that for entrepreneurs whose enterprises were medium performers, a high frequency of communication with their peers in the franchise network resulted in decreasing sales. The latter finding implies that the cost of maintaining network relationships may result in diminishing returns as posited by Parida et al. (2016) and Semrau and Werner (2014).

Social Networks of Female Entrepreneurs

The extant literature on the social networks of female entrepreneurs is sparse (Ortiz-Walters, Gavino, & Williams, 2015; Tedla, 2015). The dearth of empirical research in the stream is not surprising as women's entrepreneurship remains understudied compared to male entrepreneurship (Fayolle, Yousafzai, Saeed, & Henry, 2015; Sequeira, Wang, & Peyrefitte, 2016). The few empirical studies that have focused on the effect of social networks on women's entrepreneurship coalesce around findings that indicate female entrepreneurs benefit from social networks (ÇetİN et al., 2016; Tedla, 2015). Wang and Morrell (2015) purported that social networks are critical for the establishment and growth of female-owned businesses. Wang and Morrell found that women leveraged their

networks to recruit employees, partner with other business owners, and create relationships with suppliers and clients.

However, scholars studying women entrepreneurs operating in diverse geographic regions have found that female entrepreneurs have smaller, more cohesive networks than male entrepreneurs. The networks are male-dominated, particularly in patriarchal societies and in male-dominated industries such as technology (ÇetİN et al., 2016; Huang & Aaltio, 2014; Tedla, 2015). The male-dominated nature of women's entrepreneurial networks may be attributed to the socio-cultural context, as men remain in strategic positions of centrality and are at the apex of many organizations (Cheraghi, Setti, & Schøtt, 2014; Lutter, 2015; Marlow & McAdam, 2013). Some scholars have found that the small, dense networks of women entrepreneurs may result from their commitments to family obligations, which may limit their ability to extend their networks, and lead to the organic formation of strong, kin-centric ties (Wang & Morrell, 2015; Welsh, Memili, Kaciak, & Al Sadoon, 2014).

Although some researchers including Stam et al. (2014) have advocated that less dense networks impact entrepreneurial success more positively than cohesive ones, empirical results indicate that female entrepreneurs may benefit from networks comprised of strong ties. Women entrepreneurs in Malaysia reported that they received significant emotional and financial support from their strong ties, especially during crisis situations (Omar, 2015). Tundui and Tundui (2013) found that female entrepreneurs in Tanzania, who received business advice from their families were more likely to increase their

venture's profitability. In fact, the women entrepreneurs who did not receive family advice and support were 10.7% more likely to report a decline in enterprise profitability.

Some researchers including Neill et al. (2015) have posited that the entrepreneurial mindset and growth orientation of female entrepreneurs may determine the composition of women's networks. Neill et al. found that women entrepreneurs who possessed a strong discover mindset sought to create more diverse social networks. Upson, Damaraju, Anderson, and Barney (2017) concluded that the strategic intent of the entrepreneur may determine the network's structure. The researchers concluded that entrepreneurs seeking discovery opportunities embed themselves in dense networks, while those seeking creation opportunities cultivate more extensive and diverse networks. Other researchers have found that the activation of social networks is contingent upon self-identity. Entrepreneurs who have a stable self-identity seek to activate a wider, less dense network (Menon & Smith, 2014).

Minority women and social networks. A paucity of extant literature exists on the topic of social networks and minority women, and in particular Black female entrepreneurs who were the population of the study (Link & Strong, 2016). Black female entrepreneurship remains understudied, especially in the technology industry, perhaps because women in general and Black women specifically remain underrepresented in the technology industry (Isaac et al., 2014; Tinkler et al., 2015). However, scholars who have conducted research on Black female entrepreneurs in general, reported the positive effect of social networks on the growth of women-led businesses (Cheraghi et al., 2014; Tedla, 2015; Tundui & Tundui, 2013).

The few studies on the effect of network relationships on technology companies owned by Black women, reveal that Black women are excluded from the primarily White male social network that characterizes the technology industry. Black women's exclusion from the entrepreneurial network in the technology industry has resulted in significant challenges in obtaining VC funding (Alsos & Ljunggren, 2013). Data reported by CB Insights (2010) revealed that a mere 1% of Black founders of technology ventures received VC funding, with women comprising a negligible percentage of that 1%. Paglia and Harjoto (2014) found that venture capitalists were more prone to invest in entrepreneurs with similar characteristics, while Bengtsson and Hsu (2015) reported the practice of co-ethnic matching by venture capitalists.

Fisher (2013) purported that cohesive social networks and the resulting social capital may have a negative effect on minority groups as the more powerful groups engage in exclusionary tactics, a paradigm known as the suppression hypothesis. The view is supported by Nguyen and Nordman (2017) who found that the exclusionary nature of social capital may negatively affect entrepreneurial development. Some researchers have noted that gender, race, and ethnicity are bases for the formation of dense, cohesive networks, and female and minority entrepreneurs tend to form homophilous networks (Freeland & Keister, 2016; Perrault, 2015).

Black female technology founders' inadequate ties with venture capitalists may prove detrimental to their bid to obtain VC funding. Scholars have found that social capital through network ties is a significant factor that determines an entrepreneur's ability to access VC funding for technology start-ups (Spiegel et al., 2016). Spiegel et

al.(2016) found that most of the founders in their study had received an introduction to a venture capitalist from a contact and that the entrepreneur's professional network was germane to the start-up's success.

Transition

Section 1 includes an introduction of the study, its purpose, significance, the research question, and implications of the study for social change. A discussion of the extant literature on entrepreneurship, the role of VC in the entrepreneurial ecosystem, and a review of the effect of social networks of entrepreneurs on enterprise performance follows. The constructs of the conceptual framework and a literature review of the role of social networks in women-owned businesses and minority women-owned businesses operating in the technology industry closes Section 1.

Section 2 outlines the methodological approach to the study and includes a description of the research design, population, sampling method, ethical considerations, reliability and validity, data organization, collection, and analysis. Section 3 commences with the presentation and analysis of the study's findings. The final section also includes a discussion of the implications of the findings of the study and recommendations for future research.

Section 2: The Project

Finding the strategies used to obtain VC funding by minority female entrepreneurs who own technology businesses was the purpose of the study. I explored the strategies through a multiple case study approach and focused on Black female entrepreneurs residing in the United States of America. The findings may provide a model for other minority entrepreneurs who may wish to obtain VC funding for their technology enterprises.

Purpose Statement

The purpose of this qualitative multiple case study was to explore strategies that Black female entrepreneurs who own technology businesses use to obtain VC funding. The targeted population consisted of five Black female owners of technology business located in the United States who obtained VC funding for their technology businesses. The population was appropriate as the female entrepreneurs had successfully implemented strategies to obtain VC funding for the technology businesses. The implication for positive social change includes the potential to increase the number of Black female-owned entrepreneurial ventures. Access to VC funding for technology ventures may benefit a community by providing more employment opportunities, which may improve the vitality of the economy on a macrolevel.

Role of the Researcher

The academic researcher performs many roles, including the evaluation and management of research, networking, and collaboration on research, publishing research, and conducting research (Kyvik, 2013). The researcher in a qualitative study is involved

in the collection of data, most often through in-depth interviews, and serves as the primary instrument of data collection (Collins & Cooper, 2014; Cronin, 2014; McCusker & Gunaydin, 2015). Researchers should report personal and professional factors that may influence data collection and analysis (Cope, 2014). I have resided in the United States, the geographical location where the participants reside. However, this did not result in bias.

The Belmont Report (1979) outlined three ethical principles that researchers should be bound by when conducting behavioral research respect for persons, beneficence, and justice. Researchers should respect participants' autonomy and refrain from seeking to influence or coerce participants, minimize potential harm while maximizing the potential benefits of participants, and ensure that participants share equally in the burden and benefits of the research. Sanjari, Bahramnezhad, Fomani, Shoghi, and Cheraghi (2014) concurred with the aforementioned and opined that researchers should respect and safeguard research participants.

The epistemological underpinning of the qualitative approach indicates that the researcher and the participant are linked together in the process of the research. The researcher's biases may potentially influence the research process. It is imperative that the researcher acknowledges and discloses any biases and contains those biases through bracketing (Sorsa, Kiikkala, & Åstedt-Kurki, 2015). I mitigated bias primarily through participant member checking. I ensured confirmability through rich descriptions and an explanation of the data analysis process.

Interviews were the primary data collection tool for the qualitative study. To ensure

the study's rigor and validity, it is important that I captured accurate, in-depth, and insightful information from the participants, as recommended by Yin (2014). An interview protocol served as a guide for the interview process. The interview protocol facilitates a high information yield interview by soliciting open-ended, detailed responses, and the researcher's use of a protocol increases the trustworthiness of the study (Kallio, Pietilä, Johnson, & Kangasniemi, 2016).

Participants

Five female owners of technology businesses who have received VC funding participated in the study. The purpose of the study was to explore the strategies that Black female entrepreneurs who own technology businesses use to obtain VC funding. To gain access to potential participants, I solicited the assistance of the managers of entrepreneurship accelerators, incubators, and VC funds in the United States who target minority entrepreneurs to provide me with the contact information or disseminate an email on my behalf a request to participate in the study. Additionally, I contacted the researchers at the Babson College's Diana Project who conducted the study titled "Women in 2014: Bridging the Gender Gap in Venture Capital" to request their assistance in providing leads to entrepreneurs who met the criteria. The researchers working with the Diana Project conduct studies that educate female entrepreneurs about strategies to obtain capital and seek to use their findings to encourage investors and financiers to invest in women-owned ventures. Finally, an online search to seek out entrepreneurs who meet the criteria was the final part of the recruitment strategy.

Based on the leads generated, I contacted the entrepreneurs and sought the cooperation of the female entrepreneurs who met the criteria. A subsequent email was sent to the entrepreneurs in the purposive sample, which included an explanation of the study, the criterion, the benefits to the participants, and a consent form. Similar approaches to participant recruitment have precedence in the extant literature as outlined by scholars (see Archibald & Munce, 2015; Cridland, Jones, Caputi, & Magee, 2015). Additionally, continuous communication with the potential participants that commenced with an introductory and informational email to solicit participation and follow-up emails built rapport. The communications clarified the data collection process, explained the incentive of increased knowledge, informed the participants about poststudy access to the findings, addressed any privacy concerns, and reduced any discomfort the participants felt (Constable et al., 2015; Cridland et al., 2015; Yap & Webber, 2015).

Research Method and Design

Research Method

The examination of the strategies used by Black female owners of technology businesses to obtain VC funding requires an emergent and inductive approach to the research process (Yilmaz, 2013). The qualitative approach emphasizes the construction of social and organizational reality by the participants and as such was suited to the study (see Ketokivi & Choi, 2014; Lewis, 2015; Rauch, Doorn, & Hulsink, 2014). The explorative strategy provided me with insight into the successful VC sourcing strategies of minority female technology entrepreneurs.

Qualitative research is most useful when explanations are required by the researcher that may be difficult to quantify. It is investigative in nature and occurs in a natural setting. Using qualitative research, a researcher can provide a holistic explanation of the particular phenomenon under inquiry from the participant's perspective (Aguirre & Bolton, 2014; Swafford, 2014). A qualitative approach allows the researcher to generalize from specific, contextual information (Peters, Adam, Alonge, Agyepong, & Tran, 2014). Entrepreneurship research that explores the topics of gender and ethnicity are well-suited to a qualitative approach (Galloway, Kapasi, & Whittam, 2015). I aim to present an intersectional perspective on gender, ethnicity, and VC financing, and consequently this goal is best served by a qualitative approach to the research.

The research question is one determinant of the research method, as is the study's purpose and context (Gelling & Engward, 2015; Yazan, 2015). Yazan (2015) and Gelling and Engward (2015) posited that the study's research question, purpose, and goals should guide the researcher's choice of research method and design. The study's purpose of exploring VC funding strategies and the objective of providing a framework that could inform the practice of other female entrepreneurs seeking VC funding is not suitable for the discrete nature of quantitative analysis that researchers use most often to test hypotheses (Smith, 2014). A quantitative approach to the study would not facilitate the discovery of the information necessary to address the research question of what strategies Black female entrepreneurs use to receive VC funding (see Choy, 2014). Quantitative research cannot provide the detailed descriptions (Miller, 2014) required to explore the

strategies used by Black women to obtain VC funding for their businesses, and, as such, it was an unsuitable method of inquiry for the study.

Mixed method research combines qualitative and quantitative research methods and techniques into a sole study (Green et al., 2015). The mixed method design aligns with the pragmatic worldview that advocates for a strategy of inquiry that is best suited to the research problem, which in some instances may require a hybrid of qualitative and quantitative designs (Sparkes, 2015). Despite the advocacy by some scholars for a mixed methods approach as a form of inquiry that provides more rigor, validity, and insight than a mono-method approach (Hussein, 2015), the study's research question did not align with a quantitative inquiry. The numerical foundation of a quantitative method was not helpful in exploring the research question (see Green et al., 2015). Therefore, a mixed methods approach was unsuitable to explore the strategies employed by minority female technology entrepreneurs to obtain VC funding.

Research Design

I chose to employ a qualitative multiple case study design to sufficiently answer the research question, which was exploratory in nature. The researcher who uses a case study design can focus on a distinct unit of analysis to understand a complex phenomenon of the sourcing of VC funding by Black female technology entrepreneurs (see Yin, 2014). Ketokivi and Choi (2014) posited that case study research allows a researcher to elaborate on existing theory and conceptual frameworks in a novel or underresearched context. The case study design is especially suitable when the researcher seeks depth and insight into the phenomenon when a behavioral modification is

impractical, and when the phenomenon and the context are intertwined (Cronin, 2014; Lewis, 2015; Yin, 2014).

A qualitative phenomenological design explores participants' lived experiences of a phenomenon and the perceptions of the participants about their experiences (Shim & Santos, 2014; Sloan & Bowe, 2015; Verschueren et al., 2015). A phenomenological design was not suitable for the research question as I was not examining the entrepreneurs' lived experiences. Instead, I explored the strategies the entrepreneurs used to receive financing from venture capitalists for their technology businesses.

An ethnographic design is not suitable to explore the research question. An ethnographic design is a research methodology that allows the researcher to explore the cultural experiences and norms of a particular group and the meaning of the experiences they share in that culture (Aziata & Adejumo, 2014; Jerolmack & Khan, 2014; O'Gorman, MacLaren, & Bryce, 2014). A researcher conducting ethnographic research within a business views the firm as a micro-culture, where participants share the values and norms of the organization's culture (Jarzabkowski, Bednarek, & Cabantous, 2015). I am did not explore the organizational culture of the ventures; therefore, an ethnographic design was not suitable to the nature of the inquiry.

A researcher attains data saturation when the researcher gleans no new information, and when no further coding is possible (Fusch & Ness, 2015). Morse (2015) advanced that data saturation is germane to the quality and rigor of a qualitative study and that the researchers who attained data saturation produced cohesive and replicable studies. I used member checking to achieve data saturation in the study. Member

checking involves the researcher's summary of the information gathered from the study's participants. The researcher reviews the synopses with the participants to determine if the summary accurately reflects the participants' statements and feelings regarding the phenomenon under analysis (Cope, 2014; Kornbluh, 2015). The process of member checking improved the rigor of the study as it allows the researcher to ensure credibility and validate the interview (Simpson & Quigley, 2016).

Population and Sampling

The population for the study was Black female technology entrepreneurs residing in the United States of America who have obtained VC funding. I selected five participants from the population by purposeful sampling. Purposeful sampling is applicable to implementation research and allows the researcher to select participants whose experience is relevant to the research focus (Palinkas et al., 2015; Robinson, 2014; Yin, 2014). Bungay, Oliffe, and Atchinson (2015) advanced that establishing criteria based on the locale and target group was critical to designing a purposeful sampling strategy suitable for qualitative research. I chose the geographical space of the United States to increase the probability of finding suitable participants who met the criteria.

Five minority female technology entrepreneurs in the United States who have obtained VC funding participated in the study. The sample size is a critical element that determines a study's rigor and credibility. However, the extant literature on sample size does not coalesce around a recommended sample size for qualitative research (Cleary, Horsfall, & Hayter, 2014). Malterud, Siersma, and Guassora (2016) noted that many researchers use data saturation to determine the sample size for qualitative research

studies. Yin (2014) purported that sample size determination was discretionary rather than prescriptive. The dearth of minority women in the technology industry who have obtained VC funding justified the selection of five participants.

The participants were geographically distant from me, therefore online conferencing was the medium of choice. Video-conferencing preserved the advantages of face-to-face interviews which include the ease of the participant who remains in her natural setting, the researcher's ability to observe body language cues which may aid in communication, and the establishment of rapport (Deakin and Wakefield, 2014; Yazan, 2015). Seitz (2016) noted that researchers could experience technical difficulties while using Skype as an interview medium but recommended several strategies to overcome any challenges. Seitz suggested that researchers should ensure they have a stable internet connection, a quite space, speak slowly, and pay close attention to facial expression. I used the strategies recommended by Seitz.

I used member checking as part of the interview process to achieve data saturation in the study. Member checking involves the researcher's summary of the information gathered from the study's participants. The researcher reviews the synopses with the participants to determine if the summary accurately reflects the participants' statements and feelings regarding the phenomenon under review (Cope, 2014). The process of member checking improves the rigor of the study as it allows the researcher to ensure credibility and validate the interview (Kornbluh, 2015; Simpson & Quigley, 2016). Therefore, I conducted member checking prior to the analysis of the data.

Ethical Research

The researcher is obligated to protect the human subjects of the study by adhering to ethical principles (Yin, 2014). The Belmont Report (1979) outlined the ethical principles that should govern the research of human subjects - the respect for persons being one principle. The researcher can undertake the mandate of respect for persons by ensuring that the participants in any research study act autonomously, that the participant provides an informed consent, and that the researcher ensures the confidentiality of the participants (Beskow, Check, & Ammarell, 2014; Dekking, van der Graaf, R., & van Delden, 2014).

Informed consent is not negotiable in research studies that include human participants, and is a process that the researcher uses to inform the participants about the study's details so that the researcher can gain voluntary participation (Grady, 2015). I took the following steps to obtain informed consent as recommended by Nijhawan et al. (2013). Firstly, I communicated by email with the participants to disclose the details and scope of the study including its purpose, measures to ensure confidentiality, interview process, member checking, withdrawal from the study, and the perceived benefits and risks. I responded to any questions the participants had, and obtained the an email consenting to the study before I conducted interviews I began the informed consent process after receiving Walden University's IRB approval number 03-08-18-0518729.

Human participation in research studies should be voluntary according to the Belmont Report (1979), and participants should be able to withdraw from the study at any time. The study did not include any data collected from any participant who

withdrew from the study. In the event of a participant's withdrawal, I shall return all interview recordings and any prepared interview transcripts by email to the participant.

The entrepreneurs did not receive any financial or token incentives to participate in the study. Largent, Grady, Miller, and Wertheimer (2012) conducted research on the attitudes of IRB members and research ethics professionals on financial incentives provided to research participants. Largent et al. found that most of the respondents indicated that financial incentives could compromise the ethics of a study as the respondents perceived that the incentives could unduly influence participants' decisions to volunteer. Approximately 65% of the respondents also noted that financial incentives could amount to coercion of the participants. Instead, I will share the findings of the study with the participants as a non-financial incentive.

Morse and Coulehan (2015) noted that ensuring the confidentiality of participants is an important tenet of research ethics. To ensure the confidentiality of each participant's identity, pseudonyms replaced the name of the participant and the identity of any venture capitalists she identified in the interviews. Saunders, Kitzinger, and Kitzinger (2015) recommended the use of pseudonyms to anonymize interviewees' identities and the identities of any individuals who interviewees may name during the interview. All data is stored by me on password-protected flash drives that I will secure in a locked cabinet for 5 years to safeguard the confidentiality of the participants, after which time I will erase the data.

Data Collection Instruments

Researchers are the principal data collection instrument in the qualitative method of inquiry, often through in-depth and open-ended interviews (Collins & Cooper, 2014; McIntosh & Morse, 2015). Yin (2014) wrote that evidence collected through interviews is one of the most important sources of data in case studies. Mojtahed, Nunes, Martins, & Peng (2014) noted that the researcher and the participant are linked in the process of the research and construct meaning together. As the researcher, I was the principal data collection instrument and conduct semistructured interviews with the participants.

The interview protocol served as a guide for all interviews (Kallio et al., 2016). The interview protocol facilitated the participants in providing rich descriptions that were relevant to the research question (Castillo-Montoya, 2016). The researcher's use of the interview protocol allows for a systematic approach to interviewing multiple participants (Jamshed, 2014), and the study had five participants. The interview protocol is in Appendix B of the doctoral study manuscript.

To enhance the validity and reliability of the data collection process, the participants reviewed synopses of their interviews to facilitate member checking. The member checking process allows the researcher to review the interview summaries with the participant to determine if it accurately reflects the participant's statements and feelings (Cope, 2014). The process of member checking improves the rigor of the study as it allows the researcher to ensure credibility and validate the interview (Birt, Scott, Cavers, Campbell, & Walter, 2016; Simpson, Quigley, 2016).

Data Collection Technique

The semistructured interview is the primary data collection technique for the study. I conducted interviews of no more than a 60-minute duration. The interview medium was an online synchronous video platform. Oates (2015) found Skype to be a feasible alternative to face-to-face interviews and especially suitable when the participants and the researcher are geographically separated. Oates also found that the researchers who used Skype did not experience any difficulty establishing rapport with the participants during the interviews. Similarly, Deakin and Wakefield (2014) found Skype to be a feasible alternative to face-to-face interviews and found that researchers who used Skype reported that they established rapport more quickly and easily than with participants of face-to-face interviews. Deakin and Wakefield recommended that researchers compensate for technology glitches that interfere with the video by using the chat feature. I recorded the interviews with the consent of the participant to create a file for review as suggested by Jamshed (2014). The recording of the online interviews facilitated member-checking, as I created a summary of the participants' responses. A researcher can ensure data saturation by member checking as the participant will indicate whether her responses have been captured by the researcher accurately. Member checking aids the researcher in improving the rigor of the study (Cope, 2014; Birt et al., 2016; Simpson, Quigley, 2016).

The researcher's use of the semistructured interview provides him with the guidance of predetermined questions thus contributing to the study's trustworthiness, while still facilitating flexibility in questioning (Cridland et al., 2015; Jamshed, 2014).

However, Elo et al. (2014) cautioned that semistructured interviewing might result in the researcher steering the interview. Negative interviewer affect may cause the interviewee to provide socially acceptable answers, and the time-consuming and costly nature of semistructured interviews are additional disadvantages of the data collection technique when administered face-to-face (McIntosh & Morse, 2015). However, the benefits outweigh the disadvantages associated with semistructured interviews. Semistructured interviews enable the researcher to probe and explore emerging information disclosed by the interviewee and allow the researcher to understand the current and retrospective experiences of the participants (Gioia, Corley, & Hamilton, 2012).

Data Organization Technique

I organized and managed the collected data by using the NVivo software application by QSR International. NVivo facilitates the researcher's analysis of the semistructured interview responses, storage of data, data comparison, coding, and theme establishment (Sotiriadou, Brouwers, & Le, 2014; Zamawe, 2015). Woods, Paulus, Atkins, and Macklin (2015) found that 99.6% of researchers used NVivo to manage and organize the data collected from their studies. All data and resulting information generated from NVivo were password protected, and I downloaded the resulting information to a password protected device which I keep in a locked cabinet. No one other than myself will be privy to the passwords, and I will similarly secure all documents associated with the study. I will store the data for 5 years, after which, I will physically destroy the password protected device and permanently delete all electronic copies of the data.

Data Analysis

The purpose of the qualitative study was to explore the strategies used by minority female technology entrepreneurs to obtain VC funding. To ensure the validity and reliability of the study and to assist in the analysis and interpretation of the data I used data triangulation and methodological triangulation. Data source triangulation involves the researcher collecting and examining the data from different sources and facilitates the researcher in the corroboration of the data and analysis of the findings (Carter, Bryant-Lukosius, Dicenso, Blythe, & Neville, 2014; Denzin, 1970; Yin, 2014). The collection of data from the multiple participants ensured data source triangulation. During the research process, I wrote journal entries during the data collection stage as themes emerged, a technique suggested by Yin (2014). The combination of data collection by semistructured interviews and journaling allowed for methodological triangulation (Carter et al., 2014; Denzin, 1970; Joslin & Müller, 2015). When I completed the data collection, I reviewed the data manually and noted the emerging themes using the preliminary observations and interpretations as a guide, determined codes for the data, and began the iterative process of explanation building. The process was proposed by Yin (2014), Tsang (2013), and supported by Cronin (2014) as an analytic technique for case studies before uploading the data into NVivo.

Davidson, Paulus, and Jackson (2016) posited that computer-assisted qualitative data analysis software such as NVivo had improved the efficiency of the data analysis for qualitative researchers. The use of the predefined codes assisted my NVivo operations in the data analysis exercise (Woods et al., 2015; Yin, 2014; Zamawe, 2015). I compared

the NVivo generated themes with those generated in the manual process, and reconciled both to assist in the analysis of the data. The reconciliation of the themes and patterns aligned with the central research question, conceptual framework, and rival explanations.

Reliability and Validity

Reliability

Yilmaz (2013) and Yin (2013) advanced that reliability in case study research designs facilitated the repeatability and consistency of the research procedures, and minimized biases and errors. Yin advised that researchers utilize a case study database and a case study protocol to ensure the reliability of the study. I ensured dependability by member checking the data collected during participant interviews as recommended by Birt et al. (2016) and Morse (2015).

Validity

Long (2015) defined validity as the degree to which the research instrument accurately captures the phenomenon under study by the researcher. A researcher using a qualitative approach can ensure qualitative validity by using the extant literature on the topic as a foundation for his study (Sandelowski, 2015). Elo et al. (2014) purported that researchers could enhance the validity of their studies by evaluating all stages of the data analysis process to ensure trustworthiness and by reporting on the process of data analysis. Meanwhile, Yin (2014) purported that a researcher's use of triangulation strengthens the validity of qualitative studies. Denzin (1970) proposed that researchers should use triangulation to ensure validity, as a researcher's use of triangulation allows them to explore the same phenomenon from different perspectives. I used methodological

and data triangulation. Carter et al. (2014) reported that researchers often use methodological triangulation in qualitative studies and may include interviews and notes. I used semistructured interviews and journal entries as data collection tools. Similarly, Denzin (1978) advanced the use of within-method methodological triangulation to enhance the validity of the data collected. Carter et al. also advised that researchers could use data triangulation to improve validity. I used both triangulation methods to strengthen the study's validity.

The credibility of a study lends to its trustworthiness and rigor (Lincoln & Guba, 1985). Anney (2014), Morse (2015), and Simpson and Quigley (2016) advised that a researcher can ensure credibility by member checking, peer debriefing, triangulation, and prolonged engagement. To maximize the credibility of the study, I used member checking, as the process allows participants to confirm the accuracy of the interpretation of the interview data.

Transferability refers to the extent that the findings of the case study apply to other settings and contexts. Yilmaz (2013) posited that transferability was the choice of the reader and not the researcher. However, the researcher can embed rich, thick descriptions in the case study to improve the transferability and strengthen the validity of the study (Morse, 2015; Ridder, Hoon, & McCandless Baluch, 2014; Yin, 2014). The use of the NVivo software application to assist in data management and analysis assured the confirmability of the study as it provides an audit trail (Baillie, 2015; Woods et al., 2015). Yin (2014) advanced that a researcher's use of a case study database significantly increases the reliability of a case study.

Fusch and Ness (2015) posited that data saturation was an important factor in the content validity of qualitative research. The researchers recommended multiple techniques that researchers could employ to arrive at data saturation, including interviews that yield rich and thick data, and mitigating the bias of the researcher. Morse (2015) supported the use of multiple interviews to arrive at data saturation and opined that replication of the data provided by several participants was indicative of data saturation. I undertook the member checking process to ensure content validity. Additionally, the interview protocol for the semsitructured interviews included open-ended questions to facilitate rich and thick responses from the participants, and follow-up questioning with the participant aided in data saturation. I consciously remained objective throughout the research process to mitigate any biases to optimize the study's validity.

Transition and Summary

The purpose of the study was to explore the strategies that Black female founders of technology enterprises use to obtain VC funding. Section 2 included the study's purpose, a discussion of the researcher's role, the participant criteria, the research method and design, and the population and sampling methods. A discussion of the strategy of data collection, organization, and analysis followed, Section 2 concludes with a description of how this researcher ensured the study's validity and reliability.

Section 3 commences with an introduction, presentation and application of the findings, and the implications of the findings for social change. Recommendations for action and for further study conclude Section 3.

Section 3: Application to Professional Practice and Implications for Change

Introduction

The purpose of this qualitative multiple case study was to explore the strategies that Black female entrepreneurs who own technology businesses used to obtain VC funding. Five Black female entrepreneurs in the United States of America who received VC funding for their technology businesses participated in semistructured interviews. The participants discussed the strategies they used to obtain VC funding. The strategies identified by the entrepreneurs included entering pitch competitions and accelerator programs, building a strategic and diverse network, establishing trust with potential investors through frequent communication, and following up with potential investors to obtain a commitment of funding. One hundred percent of the participants emphasized the importance of building a diverse network and leveraging that network to obtain access to venture capitalists. Four of the five participants disclosed that after participating in pitch competitions and accelerator programs, that they had received funding from venture capitalists. The female technology entrepreneurs emphasized that obtaining VC required frequent communication with potential investors to foster trust and to educate the investors on the business' value proposition to increase the probability of the venture capitalists' committing funding to the enterprise.

Presentation of the Findings

The purpose of the study was to explore the strategies that Black female entrepreneurs who own technology businesses use to obtain VC funding. The analysis of the data including interview responses and pre- and post-interview journal entries, resulting in three main themes. These themes were (a) the women's participation in pitch competitions and acceptance into accelerator programs, (b) the strategic building of their networks to increase network size and the number of weak ties, and (c) frequent communication with network ties and timely follow-up with potential investors.

Theme 1: Participation in Pitch Competitions

Four of the five entrepreneurs disclosed that entering pitch competitions was a strategy that they had used to access venture capitalists, while three of the four founders noted that the pitch competitions ultimately resulted in their first round of funding. Table 1 summarizes the participants' responses when speaking of pitch competitions as a strategy to obtain VC funding.

Table 1

Participant Responses Regarding the Importance of Pitch Competitions for Funding

	Number of participants reporting	Percentage
Entered pitch competitions	4	80%
Funding as a direct result of pitch competitions	3	60%
Access to accelerators through pitch competitions	4	80%

Entrepreneur 3 (E3) remarked that

> pitch competitions have been a way, and in fact we were invited into one of the accelerators after a pitch competition, and there was an investor in the crowd and they saw me and said hey, you should come be a part of our program and they ended up giving us money.

Similarly, Entrepreneur 4 (E4) disclosed that "the other venture capitalist came to us through a demo day." Entrepreneur 5 (E5) stated, "Our first investor came through a pitch competition." The participants who used participation in pitch competitions as one strategy to obtain VC touted some of the advantages to pitching. Increased venture visibility and "buzz" and the opportunity to join an accelerator program were the principle benefits cited by those entrepreneurs. Entrepreneur 1 (E1) stated that "pitch competitions were really helpful in getting interest from folks." E3 concurred and noted that "going from the pitch competition into the accelerator and definitely being a part of the community is important as you have to have a certain degree of visibility to get the money."

Acceptance to an accelerator program provided these four entrepreneurs with direct access to investors, and in each of the four cases, the entrepreneur received VC funding through her participation in an accelerator program. Three of the four entrepreneurs provided positive evaluations of the accelerator programs, while one gave a mixed review. Benefits of the accelerator programs identified by the participants included general business training, direct access to investors, assistance with due diligence, mentorship, and coaching. Kuschel, Lepeley, Espinosa, and Gutiérrez (2017) reported that the female technology entrepreneurs in the Startup Chile accelerator program opined

that being part of the accelerator had provided them with many opportunities, resources, and network access. The researchers' findings aligned with those of Block, Colombo, Cumming, and Vismara (2018) about the advantages of accelerator programs for entrepreneurs. Speaking about the benefits of being in an accelerator cohort, E5 remarked, "We received so many resources, so many connections, and were invited to investor days, where they brought in a bunch of investors in the room and it was just for those companies that were invested in by our investor." E1 stated, "We got a lot of coaching while in the accelerator about how to fundraise." However, E3, while not discounting the advantages of accelerator programs, did note that all programs were not equally beneficial to founders. She stated,

> Only one of those was really valuable. The other two were like general advice, give you the lay of the land… Not to say it was not helpful, I learned how to make a financial model. I didn't learn how to make the best financial model for my business just how to make one…so there was only one accelerator… that had people in it really willing to just focus on trying to help bring this idea to life and that is the not a common thing to find and so you have to really be focused on what help is going to look like for your business.

There is a dearth of literature on the relationship between female entrepreneurs' participation in pitch competitions and receiving VC funding. The few studies on the topic have revealed that gender bias persists at such competitions, with women less likely to receive funding than their male peers (Brooks et al., 2014). Malmström, Voitkane, Johansson, and Wincent (2018) found that gender bias persisted in the evaluation of

written pitches submitted by entrepreneurs. Male and female venture capitalists evaluating these pitches assumed that the women were risk-averse, capital-poor, reluctant to grow their ventures, and likely to have underperforming ventures. However, their assessments of the men's pitches were antithetical to their notions about women and their ventures. Smith and Viceisza (2018) explored the television show Shark Tank's pitching competition and its efficacy as a path for VC funding. The researchers found that women received fewer offers, lower venture valuations, and less capital than the male entrepreneurs who pitched to the investors in the Tank and that the venture capitalists' valuations of the businesses of minority teams were lower than those founded by Whites (Smith & Viceisza, 2018). Other researchers have found that it is not sex that determines the effectiveness of entrepreneurs' pitches in raising VC, but female, gender stereotyped behavior, even if exhibited by a male entrepreneur (Balachandra et al., 2017). The findings in the extant literature indicate biases held by VCs against women.

The findings in the extant literature do not indicate that pitch competitions are an effective strategy to achieve VC funding for minority women. However, the majority of the participants in the study received their initial funding from pitch competitions. Additionally, Smith and Viceisza (2018) found that women who received offers of funding from pitching suffered from a negative signaling effect that reduced the number of additional potential investors. The findings of Smith and Viceisza run contrary to the experiences of four of the participants, who reported a positive signaling effect to other venture capitalists after receiving funding by way of pitch competitions. E1 disclosed that she had used the funding commitment by the first investor to signal credibility, that

resulted in receiving additional funding from other venture capitalists. E3 also discussed the positive effect of gaining a lead investor and said,

> It's like dating, you only need one. As soon as one person said, that I really believe in this, I really get it now. You have been out here long enough, that I see what you are trying to talk about, and word got out that that person believed in us, I started getting calls every day.

Theme 2: Networks

All five participants discussed the importance of networks to obtain VC funding. The four participants who received their initial funding through pitch competitions raised additional VC through their social networks. The participants revealed that they accessed venture capitalists and the resulting funding through their strong and weak ties. The entrepreneurs' use of networks to secure investment aligns with much of the extant literature on the topic of the social network and its role in female entrepreneurial development (Leitch, Welter, & Henry, 2018).

There is a paucity of literature on female technology entrepreneurs and their use of networks to obtain equity funding (Xie & Lv, 2016). However, Xie and Lv (2016) found that the diversity of female technology entrepreneurs' networks was directly related to venture performance but noted that significant gender discrimination negatively moderated venture performance. Dy, Marlow, and Martin (2017) concluded from their study's data that female digital entrepreneurs remained disadvantaged in the online space by race, gender, social class barriers, and biases. The researchers noted that the social capital the female entrepreneurs had accrued, through prior high-status employment,

provided them with access to funding, knowledge, and technical expertise (Dy et al., 2017). The study's findings align with those of Dy et al.(2017) as three of the five participants disclosed that they used the networks that they had cultivated in their previous careers to gain access to venture capitalists and receiving funding. When I asked Entrepreneur 2 (E2) about her strategies to access venture capitalists and receive funding, E2 stated, "So through the course of my last company, I had worked with a lot of venture capitalists… some of the most successful and notable in the world." E4 also discussed how advantageous the personal relationships she had accrued previously were to her accessing venture capitalists later:

> The strength of my network has really contributed to my success. Absolutely. All the relationships I have built throughout my career have set me up for this moment in time. From people I was able to reach out to to help…To having credibility when introducing myself to new investors for the first time.

Network structure. Neumeyer, Santos, Caetano, and Kalbfleisch (2018) found that female entrepreneurs desirous of establishing high growth ventures, like the technology ventures in this study needed to build diverse networks to raise "risk capital". Stam et al.(2014) also concluded that women should include weak, bridging ties in what are often predominantly strong-tie networks to access the resources required for venture development and growth.

One hundred percent of the participants revealed that it was easiest to access venture capitalists through a "warm introduction" or bridging ties in their networks. E3 stated in response to the question on how to access venture capitalists,

> The most successful way the way is through introductions, which come through multiple channels, and the degree to which that introduction is warm or hot is going to determine the likelihood of getting a meeting.

E4 spoke of building bridging ties with founders in the VC's portfolio. E4 declared,

> My biggest recommendation is not to go after the VCs but the companies that the VCs invest in. So you always want a warm introduction, you never want to just cold call or just email info@vcfund.com. The most credible way to get in the door is through a founder they have already invested in who thinks you are investible as well.

All five entrepreneurs spoke of the importance of adding weak ties to their network to raise VC funding. Weak ties provided the entrepreneurs in the study with social capital which allowed them to ultimately receive funding. Entrepreneurs Three, Four, and Five also disclosed that their acquaintances, members of formal networking groups and industry colleagues, aided them in their quest for VC funding. E2 stated,

> A big challenge is figuring out a way to get in front of the venture capitalists because sending emails if you can get their email address it is not very likely that you will get a meeting out of an email, so then trying to figure out who knows who, who can maybe introduce you to somebody, so there is a lot of time spent trying to figure out how to get in front of somebody or figuring out how to build that first connection. Trying to get a meeting.

However, some of the entrepreneurs did not discount the importance of strong ties. E3 noted that her familial bonds, particularly her mother, provided her with ideas

and emotional support. On the contrary, E4 indicated that her strong ties offered tangible assistance such as practical tools to use, recommendations, but less emotional support. E4 disclosed that she had gotten into contact with one of her venture capitalists directly through a friend of hers.

The findings in the extant literature on the role of strong and weak ties in obtaining VC is similarly mixed. Omar (2015) found that strong ties provided tangible financial resources and emotional support, while Zane and DeCarolis (2016) provided a more nuanced interpretation on the importance of strong and weak ties based on their study on the effect of social capital and resource acquisition for new technology ventures. Zane and DeCarolis proposed that the strength and breadth of the subnetworks of weak and strong ties in an entrepreneur's network moderated the effectiveness of the relationships. Therefore, weak ties could be more or less beneficial than strong ties, contingent upon their subnetworks. The mixed findings in the extant literature indicate that strong and weak ties are essential for female founders as articulated by the five female technology founders in my study.

Network building strategy. The five women in the study expressed the importance of creating connections and building relationships as strategies to obtain VC funding. However, all of the participants opined that building and nurturing relationships were time-consuming tasks. The entrepreneurs disclosed that the number of persons they spoke with to obtain investor leads and the number investors they pitched to ballooned, as they sought VC funding. Researchers who have studied the nature of social networks and the entrepreneurial process have shared mixed findings on the relationship between

network size and venture growth. Pollack, Rutherford, Seers, Coy, and Hanson (2016) found that the quantity of ties was more important than the quality of ties for entrepreneurs who needed referrals, like the female entrepreneurs in the study. However, Pollack et al. did note that large networks were time-consuming for entrepreneurs to manage. E1 spoke of the significant amount of time that she had invested in increasing the size of her network:

> I was an intense relationship builder for the time leading up to, more than I was comfortable with but I realized I had to push myself out of my own comfort zone, be an intense relationship builder and connector, and going to as many things as possible and talk to as many people as possible, and email people, and try to drum up really good buzz for the company in order to have the funding happen.

E3 also disclosed that she had met with many people, including investors to grow her network and raise VC. She stated, "I walked out of meetings, hundreds of meetings… that were a complete waste of time because I did not understand… how to make the most of my time when I was looking for investment." All five entrepreneurs, having experienced the time-consuming nature of building social capital, advised that entrepreneurs seeking VC funding through networks should build their networks strategically. E2, revealed that she had adopted a strategic approach by leveraging existing relationships and building bridging ties to access investors in her specific sector. "A sectoral approach is important. So what is not a good use of anybody's time, especially when you are trying to launch a company is to spend a lot of time with people

who are not eligible investors." Entrepreneur Five also recommended a targeted approach to building relationships. She remarked,

> You always want to guard your time and so if you know there is a network opportunity, or an investor that is interested in your company, but they're moving in a different direction, it probably wouldn't be worth your time going down that lane. It must be a balance of knowing your network, and also doing your research prior to making someone a part of your network.

E3 and E4 also discussed the importance of research by entrepreneurs to ensure founder-funder alignment when building an entrepreneurial Network, to mitigate wasted efforts and to increase the efficiency of the fundraising process. All of the entrepreneurs in the study expressed that the VC industry is diverse and that not all investors are willing to invest in a founder's company based on factors such as funding amount (the ask), industry, and target customers. E4 admitted that initially, she had not sought out the correct investors. "I wasted a ton of time going after the wrong investors. The wrong VCs." The sentiment was echoed by E3, who also divulged that venture capitalists and entrepreneurs spend a lot of unproductive time in meetings where there is a funder-founder misalignment. E3 stated,

> Because I did not know how to fundraise and someone was being nice and saying let me make a call for you, I will get you coffee with this person go talk to them. I was like ok. I was not going to say no they have money I need to talk to them, but as soon as I sat down and I said what I was doing and they said, how much money I was looking for, and I said twenty, twenty-five thousand dollars, they said this is

> a waste of time. I don't write checks that small, I am a hedge fund person or I am a growth stage investor. I don't even do that.

Four of the five entrepreneurs cautioned that it was critical for founders to conduct their own due diligence and research on potential venture capitalists to fundraise more effectively. E2 stated,

> If I were launching a renewable energy company and go to lots of events with media investors that would be a terrible use of everybody's time and similarly if I was spending time doing a pitch with a company that only invests in B2C but I am a B2B enterprise software business that is also a bad use of everybody's time. So I think that one of the best strategies is first doing your research and your homework to figure out whose looking for opportunities in your space.

Additionally, E1 disclosed that although it was necessary for female, technology founders to grow their networks, that they must do so strategically, as the capital is held only by a few investors who they should target. E1 stated,

> Yes, a diverse network, but let's be honest I don't think that money is diversely held right, but there is a particular type of network. I think that it's about getting and drumming support in the networks that quote on quote matter. The ones where folks do hold a level of capital, and they are ready to invest that, and they do that on a relationship basis. There are very few people that look like me who hold capital and I can name them off the top of my head because I have encountered them before in one place or another but by large it is held by white men so this is where you can raise money.

The proactive structuring of more heterogeneous networks by the female entrepreneurs as a strategy to raise VC funding has some precedence in the extant literature. Although not exploring VC funding specifically, Upson et al. (2017) found that entrepreneurs in opportunity discovery contexts possessed more homogeneous networks, while those in opportunity discovery contexts had heterogeneous, diverse networks.

Theme 3: Communication

The five entrepreneurs who participated in the study reported that communication was an important component of fundraising. The role of communication in successfully raising entrepreneurial finance, and specifically VC has been largely ignored by scholars (Parhankangas & Renko, 2017). However, Manzanera-Román and Brändle (2016) found that communication was identified by the participating female entrepreneurs in their study as an important skill for founders. The participants in my study expressed that articulating a compelling pitch, constant updates to potential investors, following-up with venture capitalists, and establishing trust were critical to raising VC funding.

The women founders stated that when meeting with potential investors that it was important that founders make a compelling case to venture capitalists to convince them of the soundness of the business concept and the opportunity for a return on their investment. E3 remarked, “What I learned along the way with fundraising, it is 100% the entrepreneur’s job to educate the investor on the opportunity.” E2 noted that her strategy had been to use a sectoral approach to pitching to venture capitalists who understood her value proposition, as she had many years of experience in the sector in which she sought funding from VCs, thus mitigating the “challenges of pitching and making a compelling

offering to the investors." E2's assertion coalesces with that of the findings of Daly and Davy (2016) who found that entrepreneurs who successfully pitched to VCs effectively communicated their professional and technical expertise. However, E4 disclosed that the lack of diversity in the VC industry could make it difficult for founders to effectively communicate their value proposition if the target customers are minorities,as the VCs are unable to identify with the product or the customer. She stated,

> I think it is hard for me to really tease out whether or not I am being discriminated against because I am Black and I am a woman, or if it is… I can't even get your concept. I can't get my mind around what you are trying to do and why it is important, because I am a white guy.

Regular communication with potential investors and current investors is important to secure initial funding and additional rounds of VC. VCs require progress updates on milestones and general venture development, in addition to due diligence reporting. E1 stated,

> There is also a very long and lengthy due diligence process and with certain investors would not take due diligence packages from other investors. It was also following up with a massive amount of people to get the ultimate set of folks who ended up being our investors and communicating to all of them at the same time and also using one to trigger another, and it was just really difficult and on top if it you had to keep the business running and functioning and all of these things going on while trying to fundraise as well so just the added complication and also hiring in order to kind of meet requirements - investor requirements such as the kind of

> expertise on staff in order to get their fundraising or their commitment and so there are all those pieces to kind of balance out.

E5 advised that following up was essential to the fundraising process as was reporting on milestone progress to VCs to obtain their funding commitments. E5 said,

> Follow-up is so important for networking…You need to follow up with those VCs, with the person who can help you, whoever the connection is. You should not be too busy to follow up. You never know where that connection will lead.

However, she warned that founders should set their own deadlines after they have met the milestones stipulated by the potential investors. E5 advised,

> One of the questions that you should ask is what goals should I meet in order for you to invest in me. Once you meet those goals and you send them updates and they are still are not investing at this point it is kind of a waste of your time as an entrepreneur. There is somebody else out there that would love to keep moving forward with you. So if one door closes or if you are not making progress with one investor, just keep it moving.

Communication can also be used by founders to establish trust with the venture capitalist. One participant disclosed that VCs must feel that founders are trustworthy and that founders could build trust through regular communication with potential funders. E3 expressed that the initial meeting with a VC should be to develop a relationship and seek advice. E3 remarked,

> If you want money ask for advice, If you want advice ask for money. It is true. If you ask someone for feedback, they might start thinking of you as being a viable

candidate. If you ask someone for money up front, they are going to say I don't know you, you know.

The extant literature on social capital and the role of trust in building networks has been investigated by some scholars whose findings converge on the positive effect trust has on deepening the relationship between network ties including Xie and Lv, (2016). Zane and Decarolis (2016) explored the role of trust in entrepreneurial social networks and accessing financial resources. The researchers advanced that entrepreneurs' social network ties increase trust between funder and founder through referrals. However, the role of trust between the founder of a business and venture capitalists is largely absent from the literature on entrepreneurial networks.

Comparison of Findings With the Conceptual Framework

The findings of the study do not wholly support the social entrepreneurship framework advanced by Aldrich and Zimmer (1986). The scholars posited that entrepreneurship was a dynamic process that was facilitated or constrained by the social relationships of business owners.The word cloud generated by the Nvivo software presented below illustrates that the word "people" was the most used word by the participating female entrepreneurs, indicating the importance of their relationships with others in their quest to obtain VC funding for their businesses. The following figure illustrates the participants' most commonly spoken words during the interviews.

Figure 1. Nvivo word and phrase cloud.

Aldrich and Zimmer (1986) concluded that indirect relationships were more beneficial to entrepreneurs in establishing and growing their ventures, than were direct ties. The scholars also purported that the greater the reachability and centrality of these direct ties, the more beneficial they would be to the founders. Finally, Aldrich and Zimmer advanced that entrepreneurs with wider networks have access to more opportunities and resources.

One hundred percent of the participants disclosed that weak ties had been critical to their success in accessing venture capitalists, and ultimately receiving funding. The participants spoke of the importance of growing their networks through introductions by others in their existing networks and formal events organized by the accelerator administrators. The findings align with the conceptual framework and with the seminal work of Granovetter (1973) *The Strength of Weak Ties*, in which he advanced that indirect relationships were more beneficial to an individual's success than were close

relationships, as weak ties provided access to a different set of resources and information than homogeneous, strong ties. However, one of the entrepreneurs credited her friend with a direct introduction to a venture capitalist who eventually funded her venture. In this case the direct, strong relationship between the entrepreneur and her friend ultimately resulted in access to a VC who ultimately provide capital. The outcome does not align with the social entrepreneurship framework of Aldrich and Zimmer (1986) who posited that weak relationships provided beneficial resources to entrepreneurs. However, Zane and DeCarolis (2016) found that the benefits entrepreneurs accrued from their ties were contingent upon the centrality and reachability of the subnetworks of the ties, and the needs of the entrepreneur and not upon whether the ties were weak or strong.

The participants discussed the importance of the centrality and reachability of the ties in their networks for accessing venture capitalists and eventually obtaining funding. Aldrich and Zimmer (1986) identified centrality and reachability as two of the critical dimensions of an entrepreneur's network. The five participants expounded on the fact that the most useful relationships in the networks that they had cultivated were those individuals who facilitated direct access to investors and could provide "warm introductions" to venture capitalists. The dimensions of centrality and reachability of women entrepreneurs' networks have been largely ignored by researchers as noted by Khaliq, Rehman, Shaukat, Aslam, and Amin (2015), hence readers may gain valuable insight from the study about the importance of the centrality and reachability of relationships in a network to obtaining VC funding.

Although, Aldrich and Zimmer (1986) purported that larger more diverse networks were most advantageous to entrepreneurs. In the specific context of the study, the participants noted that although adding new ties to their networks was critical to accessing venture capitalists, cultivating strategic networks, yielded more results when obtaining VC than merely increasing the size of their networks thoughtlessly. The entrepreneur stated that networks should consist of ties who could create bridges to the venture capitalists who would be the best-fit for the founders' sector, market, and funding amounts. Elfring (2015), Moyes et al.(2015), and Sullivan and Ford (2014) concluded that entrepreneurs should strategically cultivate a nonhomiphilous network which they constantly change the composition of based on their needs.

Applications to Professional Practice

The study's findings can benefit several business leaders in the entrepreneurial ecosystem including, minority female technology founders, accelerator managers, and venture capitalists. The topic of Black female technology entrepreneurs has not been widely studied by scholars (Isaac et al., 2014; Link & Strong, 2016; Tinkler et al., 2015). The study includes valuable insights for the aforementioned business leaders who can apply the findings to their professional practice.

Black women who have founded technology businesses and who are seeking VC funding are the principal beneficiaries of the study's findings. The study's participants articulated practical actions and tactics that other minority female technology founders can use as a framework to obtain VC funding. Founders can seek out pitch competitions and accelerator programs as a pathway to access venture capitalists and VC funding.

Kuschel et al. (2017) wrote that the number of entrepreneurial accelerator programs had increased in Latin America in response to the desire by government officials to stimulate entrepreneurial growth in women-owned ventures, particularly women-owned technology ventures. Additionally, Black female, technology founders can begin cultivating strategic networks as recommended by the participants and nurturing those networks through frequent communication and follow-up. The networks can provide tangible and intangible resources, including financing which can assist the entrepreneurs in scaling their ventures.

Owners and managers of accelerator programs can also glean insights into an underserved niche - Black female technology entrepreneurs. Accelerator managers can target these entrepreneurs, and craft effective programs that include mentoring and coaching, networking with venture capitalists, and customized business seminars, components recommended by the participants of the study. Female technology entrepreneurs can also benefit by following the recommendations of a number of the participants regarding the choice of an accelerator program. Recommendations included, choosing accelerator programs that are best suited for the entrepreneur's particular circumstances such as the stage and nature of the business as articulated by the participants and Isabelle (2013).

Venture capitalists may also benefit from the findings of the study. VCs seeking to build a more diverse portfolio can attend pitch competitions to discover investment worthy ventures, which may result in profitable returns. Four of the five participants expressed that at least one of their VCs had funded them after a pitch competition and

through alliances with accelerator programs. Venture capitalists may also forge strategic alliances with accelerator programs whose managers target minority female founders in an effort to foster the investor readiness of minority women-owned technology enterprises.

Implications for Social Change

Black female technology founders often face a double jeopardy situation when attempting to raise VC from investors who are mainly male Caucasians, who engage in pattern and co-ethnic matching (Alsos & Ljunggren, 2013; Joshi et al., 2017; Mijid, 2017; Paglia & Harjoto, 2014). According to the 2018 Project Diane report, only 0.0006% of $424.7 billion in venture funding for technology businesses was awarded to Black female founders in the United States by VCs. The findings of the study may increase the number of minority female founders in the technology industry receiving VC, as the founders can use the strategies of the participants as a model in their quest to receive VC funding. The male-dominated composition of the technology industry and the VC industry has resulted in fewer technological innovations coming to market, as female-led businesses remain undercapitalized and uncommercialized (Carter et al., 2015). Women using the strategies outlined in the study to obtain VC funding will contribute to the pool of technological goods and services that may benefit a broader cross-section of society as the womens' innovations become available on the market.

The more minority female founders who receive VC funding, the greater the number of women who will be engaging in high-growth entrepreneurship, and are poised to make increased profits. Women in general and minority women in particular, have

concentrated their entrepreneurial efforts in low-growth sectors, resulting in suppressed earnings compared to their male counterparts, (Business Innovation and Skills, 2016; Zhu, Kara, Chu, & Chu, 2015). Women technology founders who successfully scale their businesses, may likely employ more persons, contributing to the reduction in the unemployment rate. Additionally, an increase in the number of women who can engage in the high-growth technology sector because they received VC, may reduce the race and gender wealth gap and increase the disposable income available in their own families and improve their quality of life.

Entrepreneurship educators may also incorporate the study's findings into entrepreneurship curricula. The inclusion of a model for fundraising for female technology founders would add a novel yet pragmatic component to entrepreneurship pedagogy and equip learners with new knowledge and competencies to effectively obtain VC funding. Educators should approach entrepreneurial education as "both a 'process' and a 'method'…it enables students to go beyond understanding, knowing and talking to using, applying and acting" (Huq & Gilbert, 2017, p. 158). A more practical approach to entrepreneurship education, with a specific focus on minority female technology entrepreneurs, may increase the entrepreneurial intentions of female minority students, which may ultimately result in an increase in the number of minority female founders establishing technology enterprises.

Recommendations for Action

Statistics indicate that minority women continue to be underrepresented in the technology industry and receive negligible VC funding for technology ventures (Digital

Undivided, 2018). The founders of women-led technology ventures can use the findings to formulate a framework for obtaining VC funding. I have formulated the following recommendation for minority female founders of technology ventures seeking VC funding.

The first recommendation would be that minority female technology entrepreneurs research and enter multiple pitch competitions to create visibility for the venture, hone a compelling pitch, and possibly receive funding. All but one participant touted the importance of pitch competitions as a gateway to funding and accelerator programs. The second recommendation would be to apply to accelerator programs. However, founders should evaluate the nature of each program and ensure that the program components include mentoring, direct access to funders through networking events, and customized coaching for their individual business' needs. Another recommendation would be to build a strategic network comprising of weak and strong ties. Female entrepreneurs should seek out individuals with a high degree of centrality, reachability, and wide subnetworks, to receive referrals and introductions to potential investors. Although networks are critical to accessing VCs, female technology founders should conduct due diligence on potential investors prior to accepting meetings and ensure that there is a funder-founder alignment. Finally, the entrepreneur should attempt to establish trust with venture capitalists, by seeking advice, frequent communication, and by following-up. In an effort to disseminate the findings, I will share the findings of this study with the participants, engage entrepreneurs at seminars and conferences, and publish in entrepreneurship research journals.

Recommendations for Further Research

Female entrepreneurship in general and the topic of minority female entrepreneurs and VC funding specifically are understudied areas by scholars (Link & Strong, 2016; Sequeira et al., 2016). Therefore, to increase the body of knowledge in the research stream of minority female entrepreneurship, female technology entrepreneurship, and VC funding, that scholars undertake further research on the aforementioned topics using different methodologies. Researchers could conduct longitudinal studies of female technology entrepreneurs and access to VC funding to unearth trends and provide a more holistic representation of the phenomenon.

Further research using a more diverse participant pool and a greater number of participants would be beneficial as the study's limitations included the participants' race, gender, and geographical location. The study's participants were five Black women. Hence, future research could include other minority participants such as Asian and Hispanic technology female entrepreneurs. Scholars could also explore the strategies used by male minority entrepreneurs to secure VC funding. Additionally, a widening of the geographic scope beyond the United States would lead to more generalizable findings on the strategies used by female technology entrepreneurs to receive VC funding.

No female founder who had a male cofounder participated in the study. The examination of the strategies used by mixed-gender cofounders is absent from the discourse as this was a delimitation of the study and I assumed that the participants had not concealed the existence of a male cofounder. The investigation of mixed gender

founding teams is a future area for additional research that would provide a basis for comparison of the findings of the study, and inform future business practices.

Reflections

The process of research has allowed me to hone my objectivity, process and goal orientation. The recruitment of participants proved challenging, as there are not many women who meet the criteria and the potential participants were extremely busy. Hence, I had to remain persistent during the recruitment phase. Maintaining a detailed research journal and following the protocol approved by the IRB, facilitated my successful completion of the recruitment and data collection phases of the process in a methodical and efficient manner. The skills I employed including planning, documenting of the process, and diligence, are transferable and valuable in many contexts.

The study aligns with my passion for empowering women through entrepreneurship and education. I found a wealth of research on entrepreneurship and social entrepreneurship as a conceptual framework, but discovered that there is a paucity of literature on minority female entrepreneurs like myself. The discovery piqued my desire to learn more through my research about this underresearched population.

I have personally benefited from the study as I have integrated my research on entrepreneurial networks into my entrepreneurial pursuits, which has yielded tangible outcomes. My strategic networking efforts crafted through the lens of study's conceptual framework, have resulted in an increase in the number of my clients and more opportunities to conduct entrepreneurial training through seminars and workshops. The opportunities have come as a result of weak ties, who I have recently added to my

network. Ultimately, I have come to appreciate the role of DBA research in informing the practices of business leaders and contributing to social change. I am eager to continue my journey as a scholar-practitioner.

Conclusion

Minority female technology founders receive significantly less VC funding than their male peers, a phenomenon that has persisted over the past decade (Brooks et al., 2014; Digital Undivided, 2018). Therefore, the strategies used by Black female technology founders who have received VC funding can provide insight and serve as a model for obtaining VC for other female minority entrepreneurs in the technology industry. Entrepreneurs can use the findings to apply practical tactics to obtain VC funding for high-growth technology enterprises, especially given the paucity of literature on minority female entrepreneurship and VC funding.

Obtaining VC funding is a strategic process for minority female entrepreneurs in the technology industry. Entrepreneurs can enter pitch competitions and accelerator programs to facilitate direct access to venture capitalists. Additionally, the significant roles that social networks and social capital play in the VC process, require that minority female founders intentionally build networks comprised of relationships that provide direct and indirect reach to investors. However, due diligence is required by the founders to assess if potential founders align with their values, invest in their sector and stage of the business. Not every investor will be a suitable match for every funder. Finally, female minority entrepreneurs must be bold and communicative as they seek out VC funding. They must articulate their value propositions unambiguously and follow up with

investors to cement their commitment. Seeking VC funding as a minority female founder in the technology requires a systematic approach, underpinned by high levels of self efficacy and persistence.

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Appendix A: Interview Protocol and Interview Questions

A. The interview session commences with greetings and introductions.

B. I will thank the participant for consenting to the interview and remind the participant of the consent form they assented to.

C. I will remind the participant of the main elements of the consent form including anonymity, data protection the voluntary nature, and the benefits.

D. I will inform the participant that the interview will last no longer than an hour.

E. I will ask for permission from the participant to record the interview.

F. I will note the date, time and alias of the participant for my records.

G. I will remind the participant of the purpose of the study which is to explore the strategies that minority women use to obtain VC to fund their technology businesses.

H. I ask the participant about herself, her entrepreneurial background, and the nature of her business as an introduction. I will ask:

   a. How long she has been an entrepreneur

   b. How long she has owned the technology venture

   c. To describe the nature of the venture

   d. The motivation for entrepreneurship

I. I will then proceed to the main interview questions below.

Interview Questions

1. What strategies did you use to obtain venture capital funding for your business?
2. Why did you choose the strategies you used to obtain venture capital for your

business?

3. What was the process you used to access the venture capitalists?
4. What challenges did you face in the process of attempting to receive funding?
5. How did you overcome these challenges?
6. What else would you like to share regarding strategies for venture capital funding that we have not discussed?

I will ask appropriate follow-up questions for clarity or additional information.

I will thank the participant for her time and remind the participant that I will email her a synopsis of the interview for her review and comments.

Appendix B: Participation Invitation Letter

Dear Invitee,

My name is Tamu Browne. I am a doctoral student at Walden University's Technology Entrepreneurship Program. I am kindly requesting your participation in a doctoral research study that I am conducting titled "Strategies of Minority Female Technology Entrepreneurs to Obtain Venture Capital Funding". The researcher is inviting Black/African American women in the United States who own a technology enterprise and received venture capital to help fund the business to participate in the study.

The study's procedures include:

- Participate in up to a 60-minute interview via an online video conferencing service such as Skype or a video-conferencing service of your choice at your convenience.
- Review a summary of the interview to ensure that the researcher has accurately captured the substance of the interview.
- Participate in a follow-up interview of no more than 30 minutes to discuss any new thoughts or information that may come about after the initial interview at your convenience.

Participation is completely voluntary and you may withdraw from the study at any time. The completed study will not include any information that will identify your identity, your business' identity, nor the identity of any person whose identity you may disclose in the interviews. Every entity and individual will be given an alias so that all information

disclosed remains confidential. is completely anonymous, therefore, it does not require you to provide your name or any other identifying information.

If you would like to participate in the study please read the Informed Consent letter below. I will email you to indicate whether you were selected for the study once you provide your consent as explained in the attached consent letter. Your participation in the research will be of great importance to assist in social change as the strategies you used can serve as a model that other minority, female entrepreneurs in the technology industry can use to obtain venture capital funding. The success you have experienced in obtaining venture capital funding may inspire other minority women to establish technology businesses.

Thank you for investing your time.

Sincerely,

Tamu Browne, BSc. M.S,

Doctoral Student, Walden University