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**Female Entrepreneurship: Social Embeddedness in Networks and Entrepreneurial
Intention and Opportunity Perception**

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Résumé

Puisque l'entrepreneuriat est une activité sociale ancrée dans les relations, les réseaux sociaux des entrepreneurs peuvent faciliter ou entraver le succès d'un nouveau projet. Il a été établi qu'il existe des différences dans la façon dont les hommes et les femmes utilisent les réseaux et les avantages qu'ils tirent de ces relations. Cependant, la plupart des recherches sur le thème des réseaux utilisent le genre comme variable de contrôle, mais pas comme variable modératrice.

Cette recherche se concentre sur la façon dont l'intégration dans les réseaux sociaux affecte les intentions et les perceptions entrepreneuriales des femmes en utilisant des données individuelles de 37 pays tirées du *Global Entrepreneurship Monitor* et des bases de données du *World Value Survey*. L'intégration sociale est examinée à travers l'impact de la famille, des amis et de l'appartenance à une association professionnelle par rapport aux deux variables dépendantes. La dernière hypothèse utilise des termes d'interaction combinant le genre et les variables indépendantes pour examiner comment elles modèrent la relation des variables dépendantes. Par la suite, une régression logistique et une régression logistique à effets aléatoires sont effectuées pour déterminer la probabilité d'affecter les variables explicatives.

Les résultats de la régression logistique montrent que les amis influent de manière significative les intentions et les perceptions. Dans le même ordre d'idées, la famille influe aussi de manière significative, mais seulement sur les perceptions. De même, le sexe féminin et le soutien des amis modèrent positivement l'impact sur les intentions entrepreneuriales. Pour le modèle d'interception aléatoire, les variables indépendantes ne sont pas significatives. De plus, les variables d'interaction ne modèrent pas positivement la relation. Ces résultats montrent que des liens forts sont plus

importants par rapport à l'impact sur les intentions et les perceptions entrepreneuriales qu'un lien formel de soutien organisationnel au sein des membres d'une entreprise.

Mots clés: Entrepreneuriat féminin, Entrepreneuriat, Intégration sociale, Réseaux, Intention entrepreneuriale, Perception des opportunités

Abstract

As entrepreneurship is a social activity embedded within relationships, the social networks of entrepreneurs can facilitate or hinder new venture success. It has been established that differences exist in how men and women utilize networks and the benefits that they derive from these relationships. However, most network research use gender as a control variable, but they do not include it as a moderating variable. This research focuses on how embeddedness within social networks affects female entrepreneurial intentions and perceptions; using individual-level data from 37 countries derived from the Global Entrepreneurship Monitor and the World Value Survey databases. Social embeddedness is examined through the impact of family, friends and professional association membership upon the two dependent variables. The last hypothesis uses interaction terms combining gender with the independent variables to examine how it moderates the relationship of the dependent variables. Thereafter, a logistics regression and a random effects logistics regression is performed to determine the likelihood in affecting the explanatory variables.

The logistic regression results show that friends are significant in influencing intentions and perceptions; also that family is significant in impacting perceptions only. Similarly, female gender and support from friends positively moderate in impacting entrepreneurial intentions. For the random intercept model, the independent variables are not significant. Additionally, for the interaction variables, support is not shown in positively moderating the relationship. These results show that stronger ties are more significant in impacting entrepreneurial intentions and perceptions when compared to the formal tie of organizational membership support.

Keywords: Female Entrepreneurship, Entrepreneurship, Social Embeddedness, Networks, Entrepreneurial Intention, Opportunity Perception

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Introduction

Entrepreneurship involves the study of sources of opportunities, discovery, evaluation, exploitation of opportunities and is concerned with the set of individuals that discover evaluate and exploit them (Shane & Venkataraman, 2000). Prior research did not consider the differences between genders as Stevenson (1986) discussed the methodological limitations of research in entrepreneurship. Therefore Stevenson (1986) illustrated the need for research to be done in a manner that takes into account the context of the life of a female entrepreneur. Additionally, implications arise from a gender blindness approach to entrepreneurship that does not account for differences. Lewis (2006) discussed how women adopt the masculine paradigm of entrepreneurship by strictly following universal standards of good business thereby allowing them not to maintain a gender identity different from the masculine norm (p. 458). Gupta et al (2009) found that both men and women view entrepreneurship as a masculine field, as a male typed occupation. Therefore, gender identification impacted entrepreneurial intention (Gupta, 2009, p. 409). At the country level Verheul et al (2006) investigated whether differences existed between female and male entrepreneurs, they found that family and life satisfaction positively influence the number of female entrepreneurs within a given country (p. 178). Therefore, differences do exist for female entrepreneurship and as Minniti & Nardone's research (2007) found socio-economic factors such as education, work status, household income and age do not differ by gender.

These implications for female entrepreneurs' results in women being selective in choosing business venture types. DeTienne & Chandler (2007) examined gender differences in opportunity identification to determine how men and women utilize their human capital and the differences in their opportunity identification processes, uncovering that women use learn and innovate

sequences in terms of opportunity identification. In that women are more likely to choose a specialist strategy that focuses on specially design high quality products (DeTienne & Chandler, 2007, pp. 381).

Also, there are significant differences in how female entrepreneurs are treated when they are raising capital for their businesses. Blake's (2006) research shows how gender, context, and scale interact in creating a landscape in which women face greater obstacles for resource access in terms of financing their businesses using bank loans. By conducting interviews with bank loan officers from both large and community banks they examined their lending practices. They found that for large banks an element of bias exists within the bank's lending processes, this occurs because of the flexibility afforded to the loan officers in how they interpret and apply bank rules. For women to secure business loans certain conditions must be met and since women have different experiences than men it disadvantages them. For instance, to receive a loan women must have "sufficient presence within the business community, have considerable experience in management or the relevant technological skill for her sector, have her own collateral, access to family resources, be willing to have her husband co-sign the loan and be starting a business that is perceived as needed within the local context, but which is not perceived as to be something that 'men do' " (Blake, 2006, p.196). These impediments result in fewer women seeking financing from banks and relying on their own resources and why women choose sectors with lower start-up costs (Blake, 2006, p.196). Therefore, entrepreneurship is influenced by gender aspects that enable organizations and institutions to limit access to opportunities for different groups of individuals by using an archaic and narrow definition of gendered behaviour (Blake, 2006). These barriers in receiving capital to finance their ventures can deter female entrepreneurs from creating businesses and result in existing new businesses early exits.

Additionally, these obstacles could negatively affect their perceptions of the viability of entrepreneurship as a career and prevent their goals from being realized. Shinnar et al (2012) found that gender and culture shape entrepreneurial intentions for men and women, particularly that women perceive lack of support as a significant barrier in influencing their entrepreneurial intentions. Similarly, some researchers (Aldrich & Zimmer, 1986; Bruderl & Preisendorfer, 1998; Minniti and Langowitz, 2007) have shown that feelings of self-efficacy and opportunity recognition can be influenced by external factors such as our social networks. Therefore, differences exist in the manner in which men and women place value in and utilize their networks. Moreover, since entrepreneurship is an activity embedded in social networks (Aldrich & Zimmer, 1986; Anderson & Miller, 2003) and social capital is derived from the resources embedded within those relationships (Burt, 1992), the extent to which an entrepreneur has access to such social networks and effectively utilizes it is of utmost importance.

However, how those networks are comprised is significant as well and whether those individuals will provide value to the entrepreneur. Loscocco, Monnat, Moore and Lauber's (2009) conducted a study comparing the networks of women and men running similar established enterprises. The examined whether women have the same types of networks as men in similar structural positions and whether women have similar work history and personal business characteristics compared to men (Loscocco, Monnat, Moore, & Lauber, 2009, p.389). Their research explored whether the differences between men and women networks with business and owner characteristics were controlled, thereafter they examined differences with the effects of owner characteristics on the dependent variables of network size, percentage of kin, percentage of women and heterogeneity within the network. Their results showed that differences occur within networks, men have more effective networks. Men have a lower number of kin and higher value connections, whereas

women have larger and more diverse networks. Also, when human capital variables such as education and experience are associated with network characteristics men receive a greater return on these dynamics (Loscocco, Monnat, Moore, & Lauber, 2009). Moreover, compared to men, women perceive that there are no formal organizations that they can turn to for help or advice (Loscocco, Monnat, Moore, & Lauber, 2009, p.406). The results of this research showed that the manner in which men and women's networks are configured is significant as well in terms of the diversity and effectiveness of ties.

Additionally, past research (Bruderl & Preisendorfer, 1998; Brush et al, 2002; Greve & Salaff, 2003) has illustrated the importance of social networks in determining social capital endowments during the venture creation process and ultimately the survival and growth of new business. Moreover, networks differ significantly in terms of composition for men and women (Renzulli, Aldrich & Moody, 2000; Greve & Salaff, 2003; Hanson & Blake, 2009) because women's networks are more likely to share connections amongst themselves, thereby providing redundant information (Burt, 2004). This impacts women's access to resources because network composition can impact access to non-redundant ties that hold valuable information.

In addition to network composition, spatial aspects are of the utmost importance in showing where connections lie and how far they can reach across the network (Hanson & Blake, 2009). In order for women to interact with non-redundant ties they need to have networks that have a larger reach. Therefore, gender is an important aspect particularly when it is linked with other identity dynamics such as socio-economic indicators that negatively affect women's access to diversified networks. This is due to the fact that individuals from similar backgrounds tend to associate with one another restricting access for new members that do not share similar characteristics (Aldrich & Zimmer;

1986, Burt, 1997). Additionally, aspects of networks such as legitimacy and trust can affect how individuals benefit from a network because these elements reduce risks within network relationships. Moreover, these elements are influenced by cultural dynamics that influence perceptions of women through gender biases of institutions, thereby increasing the likelihood that women will not be accepted in networks (Hanson & Blake, 2009). In contrast men are better able to mobilize different mechanisms when developing trust because they use shared social characteristics and membership in organizations, whereas women are restricted to using mainly direct contacts in building trust and legitimacy (Hanson & Blake, 2009, p.139).

Furthermore, how female entrepreneurs interact within their communities can demonstrate the positive externalities that result from their businesses. Hanson's (2009) research examined how female entrepreneurship changes the landscapes in which they operate their businesses in terms of the people and their perspectives and in their communities. Since entrepreneurship is based upon gendered ideologies, the interactions outside of their personal networks needs to be examined, particularly, their interactions with institutions. Therefore, entrepreneurship is a collective effort that is contingent upon spatial proximate resources of family, friends, relatives, neighbours, employees and governmental, non-governmental organizations and private sector institutions (Hanson, 2009). Also, the metrics in which women assess the returns they receive from their businesses differs from conventional assessments, the women placed greater importance on how their businesses impacted the well-being of communities (Hanson, 2009). Another important aspect is mentorship and its positive impact on increasing female entrepreneurship because mentorship is highly gendered and geographic. By providing mentorship to women that start businesses within a location, it changes the gendered structures of the local institutions (Hanson, 2009, p.260).

Also, in terms of practical application, female entrepreneurship is increasing globally. The Global Entrepreneurship Monitor 2015 report shows that Total Early Stage Entrepreneurship Activity (TEA) rates have increased by 7% since 2012. Also, the gender gap, the ratio of women to men participating has narrowed by 6%. Additionally, TEA and gender gap ratios have shown positive upward movement in three regions: factor-and efficiency driven Asia, Latin America and the Caribbean and innovation-driven Europe (Global Entrepreneurship Monitor 2015 report, p.7). As female entrepreneurship continues to grow, governments need to understand how to create a national culture of entrepreneurship that fosters and promotes new venture creation. Policies and systems need to be in place to ensure equal access to opportunities. However, before such policies are created to foster growth, a deeper understanding of how individuals interact and use support systems needs to be fully grasped; in order to determine where to focus efforts to increase female entrepreneurship rates. Thereby enabling governments in determining whether to provide more subsidies and grants to professional associations that aid female entrepreneurs or provide tax credits directly to female entrepreneurs. These incentives will alleviate pressure and obstacles allow women to view entrepreneurship as a viable career option.

In light of the research presented, it is apparent that a gap exists in the research in assessing female entrepreneurs and new venture creation. Furthermore, few studies elaborate on how social networks influences entrepreneurial intention and perception. Thus, this research examines the relationship between social embeddedness in networks and entrepreneurial intention and perception at the individual level, to determine the impact on female entrepreneurship. By conducting a quantitative analysis using a logistic regression and a standard error logistic regression to account for country variability. The data includes a sample of 37 countries from both

the developed and developing world. The data is collected from the Global Entrepreneurship Monitor and the World Value Survey, for a period of three years from 2011 to 2013.

This research study is organized into seven chapters. The second chapter consists of a literature review examining relevant network theories and empirical and exploratory studies discussing social network applications in entrepreneurship. The third chapter describes the hypotheses that are formulated. The fourth chapter discusses the methodological approach describing the sample and stating how the variables are to be measured and the data source for all variables used. Chapter five provides the data analysis and results. The sixth chapter is the discussion of the results and the implications. Chapter seven includes the conclusion in which limitations and future directions of research are provided

2. Literature Review

The literature review will be comprised of five main sections, first, a discussion of entrepreneurial intentions as a construct and their impact upon entrepreneurship, followed with how embeddedness is interlinked with an entrepreneur's intention. Secondly, opportunity perception theory will be discussed and then it will be linked to how embeddedness affects entrepreneurial perceptions. Third, the significance of social capital within entrepreneurship and the benefits derived from utilizing social networks is examined. Thereafter, networks are discussed in greater detail in terms of the composition and formation. Lastly, the social embeddedness of countries are assessed in how certain country level factors such as culture and openness that facilitate or hinder entrepreneurship.

Entrepreneurship as a field of study aims to determine why, when and how opportunities for creation of goods and services in the future arise within an economy. Moreover, it seeks to determine why, when and how some individuals are able to discover and exploit these opportunities when compared to others (Venkataraman, 1997; Venkataraman, 2000). This is achieved by examining the economic, psychological and social consequences of the entrepreneur in relation to stakeholders and greater society (Venkataraman, 1997, p.120-121). Thus, the entrepreneur's capacity for entrepreneurship and its relation to their individual attributes is significant in impacting their future success. Thereby inferring that the formation of new venture creation and the success of entrepreneurial activities are contingent upon two main variables, entrepreneurial intentions and opportunity perception. Thus, these two variables will be examined in detail to gain an understanding of how these factors impact entrepreneurship.

2.1 Intentions

Intentions are formed through an interplay of behaviour and attitude, the relationship between intention and behaviour is influenced by factors such as skills, abilities, willpower and environmental factors such as time limits, task difficulty and the influence of other people (Boyd & Vozikis, 1994). In that entrepreneurs are predisposed to entrepreneurial intentions through their personal and contextual factors, these personal factors being comprised of prior experiences and their personality characteristics and their abilities (Boyd & Vozikis, 1994, p.65). Thus, intentions occur as a result of an interplay of different factors. Azjen (1991) states that intentions are defined as a person's readiness to perform a given behaviour. He further discusses this through the use of the theory of planned behaviour. His framework shows that behaviour is based upon three antecedents: favourable or unfavourable evaluation of the behaviour or attitude, perceived social

pressure to perform or not perform the behaviour or subjective norms and the perceived difficulty or ease of performing the behaviour (Ajzen, 1991, p.182). This shows that cognitive framing, social context and perceived capability impacts intentions. More specifically, it demonstrates the importance of social context in influencing intentions. Also demonstrating that an individual's desire to perform can serve to mediate the relationship between attitudes and intention (Bagozzi, 1992). Thus, motivation influences intentions as well. Self-efficacy in turn, one's belief in their ability to perform a task, influences entrepreneurial intentions (Gist, 1987).

Therefore, the propensity for entrepreneurship is affected by self-efficacy in performing all the tasks that encompass new venture creation. According to Bandura (1982; Wood & Bandura, 1989) self-efficacy is developed in four ways 1) mastery of experiences, 2) modelling or observational learning, 3) social persuasion, 4) judgements of their own psychological states. This coincides with the theory of planned behaviour, particularly, the elements discussing social norms and perceived ability to perform tasks. Moreover, self-efficacy can play a role in determining future performance levels in that beliefs related to the ability to master a new situation affects future performance, past success increase self-efficacy (Gist, 1987). Furthermore, self-efficacy is a determinant in achieving success in a new venture as those with higher self-efficacy are more persistent in overcoming obstacles and perform better over the long term (Boyd & Vozikis, 1994, p.73-74). When entrepreneurs have experience in creating new businesses it aids them in developing their mastery of experience and increases their likelihood to start a business. In a similar regard, modelling and observational learning through relationships with other entrepreneurs by working in start-ups enables them to gain transferrable skills to use in their own ventures.

In light of the theoretical discussion of determinants of entrepreneurial intentions, the social context that facilitates intentions must be explored. These social factors will be explored through empirical studies that show how intentions impact entrepreneurship.

2.1.1 Embeddedness

Cognition

Bird (1988) demonstrated that an entrepreneur's direct attention, experience and actions in creating a business set the form and direction of the organization during its inception. Moreover, she found that organizational outcomes such as survival and development, growth and change are influenced by intentions. An important attribute discussed by the author was attunement, the readiness to receive and send information, influence or derive meaning from other sources. This component of entrepreneurial intention is embedded within networks. Moreover, that personal and social contexts work in conjunction in affecting an entrepreneur's rational thinking during the intention formulation process (Bird, 1988, p.443). Thus, entrepreneurs are a part of a larger ecosystem that consists of relevant individuals that can affect entrepreneurial cognition. De Carolis and Saporito (2006) proposed a model that determined how entrepreneurial behaviour occurs as a result of an interplay or interaction of environments, social networks and certain cognitive biases in entrepreneurs. The authors stated that individual cognition and social capital were significant in understanding entrepreneurial behaviour. Furthermore, the authors found that close contacts increased the use of cognitive biases, particularly representativeness. Also, that shared meanings developed within network relationships enhances the illusion of control of one's belief that their skills and abilities can impact the outcome of an event or decision (De Carolis & Saporito, 2006, p.49).

These assertions are supported by researchers (Ajzen, 1991; Boyd & Vozikis, 1994; Venkataraman, 1997) that entrepreneurial behaviours and intentions are two aspects that are interlinked. Another aspect to consider how intentions are measured and described within the literature, Quan (2012) offers a framework that further parses entrepreneurial intention into two components: impulsive and deliberate. His assertion was that impulsive intention was “the desire or willingness to start a new business without realistic control of resources necessary for specific start up activities, it is influenced by personal attitudes toward entrepreneurship” (Quan, 2012, p.946). In contrast, deliberate intention was “the result of deliberate thinking of the feasibility of entrepreneurial behaviours, it relies upon a person’s prior experiences such as the types of jobs they have had, contacts they have built and information gathered to facilitate entrepreneurship” (Quan, 2012, p.947). His research determined that prior start-up experience impacts both levels of intentions and that education is significant in impacting impulsive intention but not deliberate intention. Moreover, that social networks were significant in impacting deliberate entrepreneurial intention as it affected resource access, that were impacting by association participation and maintaining a position of influence.

Self-efficacy and social networks

Kruger and Brazeal (1994) discussed the antecedents of entrepreneurial potential, by combining two different models: Shapero’s model of entrepreneurial event discussing how life events shape entrepreneurship and Ajzen’s theory of planned behaviour that focuses on how attitudes in the form of attitudes toward the act, social norms and perceived behaviour control predict intentions (p.93). The authors found that actors within one’s environment influence perceptions in that as perceived capability as expressed by others increased, entrepreneurship also increased. They also

found that support from the government and community members increases entrepreneurship. The presence and visibility of role models positively affected entrepreneurship rates. Similarly, Sequeira, Mueller and McGee (2007) investigated how social context impacts entrepreneurial intentions and behaviours, by examining supportive strong ties, business helpful weak ties, entrepreneurial self-efficacy, age, gender, immigrant status on intentions to start a business and nascent behaviour. The authors determined that high self-efficacy increased likelihood of engaging in nascent behaviour and increased motivations for starting a business. Moreover, they found that supportive strong ties increased both nascent behaviour and intentions. However, the influence of strong ties in providing practical support through skills, experiences and knowledge does not increase intention or nascent behaviour. Similarly, for weak ties in providing practical support, weak ties did not affect nascent behaviour, however, they did increase the likelihood of intentions.

2.2 Opportunity Perception

Eckhardt and Shane (2003) define entrepreneurial opportunities as “situations in which new goods, services, raw materials, markets and organizing methods are introduced through the formation of new means, ends or ends means relationships” (p.336). Kizner (as cited in Gaglio & Katz, 2001) defined entrepreneurial alertness as it related to opportunities: “the ability to notice without search opportunities that have been hitherto been overlooked (1979, p.48) or as a motivated propensity of man to formulate an image of the future” (1985, p.56). Baron (2006) built upon Kizner’s theories and proposed that another aspect that integrates all three aspects of recognition of opportunities process into one framework: pattern recognition, “the process in which specific persons perceive complex and seemingly unrelated events as constituting identifiable patterns” (p.106). Furthermore, Baron (2006) affirms that opportunity recognition occurs when entrepreneurs are

able to “connect the dots”, they can perceive the links between unrelated events and changes, through this the patterns they perceive become the basis for identifying new business opportunities (p.106). Through this expanded understanding of recognition, Baron defines opportunities as the “cognitive process or processes through which individuals conclude that they have identified an opportunity” (p.107). From this it is inferred that opportunity recognition occurs cognition and an appropriate scanning of the external environment.

An entrepreneur’s ability to perceive opportunities is contingent upon the information they possess and how they process and utilize it (Vaghely & Julien, 2010). Opportunity perception depends upon two aspects “1) the possession of prior information necessary to identify an opportunity and 2) the cognitive properties necessary to value it” (Shane & Venkataraman, 2000, p.222). Thereby demonstrating that opportunity perception is related to an entrepreneur’s innate abilities. For example, cognitive functioning impacts an entrepreneur’s ability to process and information to turn it into relevant knowledge that can be used. Thus, a single universal process for opportunity recognition is not applicable as individual level variability exists. This provides the basis for Vaghely and Julien’s (2010) assertion that entrepreneurs process information in an interpretative way, constructing their reality by using information derived from their environments, information that results in knowledge-based action (p.78). The authors explain that entrepreneurs use two types of information: “explicit information from their sensemaking using members of their organizations and their information network and tacit information based on an entrepreneur’s own reconstruction with their organization, environment and innate abilities” (p.78). Thus, the information received is dependent upon social context factors as members within networks affect how the information is interpreted. Thus, entrepreneurs must “rationalize and justify their beliefs based on the information they receive and are exposed to, before that information can be used to create new

knowledge that leads to innovation and opportunity construction, the formalization process is key” (Vaghely & Julien, 2010, p.78). Therefore, entrepreneurial success occurs as a result of the attractiveness of the opportunity and the availability of required resources needed to exploit the opportunity (Edelman & Yli-Renko, 2010, p.834). Moreover, the differences that results from the utilization of discovery and creation perspectives can affect opportunity perception. The discovery approach focuses on the search in that entrepreneurs scan the environment for competitive imperfections that arise from changes in the environment (Edelman & Yli-Renko, 2010). In contrast the creation view states that an entrepreneur’s actions are the source of opportunity, that these opportunities would not have been actualized if the entrepreneur did not take necessary action (Edelman & Yli-Renko, 2010). The authors found that entrepreneurs using the discovery approach were different from non-entrepreneurs based on their individual level traits, whereas for the creation view, differences between entrepreneurs and non-entrepreneurs occur as a result of experiences (Edelman & Yli-Renko, 2010, p.835). Thus, one view requires scanning the environment extensively and places emphasis on entrepreneurial activity generation through proper analysis of external elements. In contrast, the other view is based upon internal factor that the entrepreneur possesses that influence their action or in action. Arenius and Minniti (2005) affirm that perceptual variables based on “subjective perceptions of one’s own skills, likelihood of failure, existence of opportunities and knowledge about other entrepreneurs are correlated to an individual’s decision to start a new business” (p.234).

Thus, entrepreneurial perceptions are impacted by an entrepreneur’s ability to process and interpret information. This information, often, reaching the entrepreneur from their external network, their ability to synthesize and apply that information into knowledge during the venture process is

crucial. Thereby demonstrating the importance of how embeddedness within networks affects opportunity perception.

2.2.1 Embeddedness

Opportunity Recognition

Opportunity identification is an activity that occurs by examining external and internal factors and how it can be utilized to process and understand relevant information (Shane & Venkataraman, 2000; Vaghely & Julien 2010). Ardichvili et al, 2003 state that there are five key factors in the opportunity identification and development process: alertness, creativity, optimism, social networks, and prior knowledge (Ardichvili et al, 2003, p.116). These elements are embedded within networks in that alertness can be aided by discussing ideas with contacts within an entrepreneur's network. Similarly, prior knowledge can be supplemented for by using mentors that have extensive experience. This coincides with research by Shepard and DeTienne (2005) stating that prior knowledge resulted in the identification of more opportunities, these opportunities had a greater degree of innovation (p.105). Moreover, the nature of social networks elements such as weak ties, action set, partnerships and inner circle impacts entrepreneurial alertness thereby influencing perception, discovery and creation (Ardichvili et al, 2003, p.118). Therefore, embeddedness in networks influences an entrepreneur's ability to envision, discover opportunities and ultimately create a new venture. Also, the direct impact on the venture creation process can be examined by determining the benefits that certain types of network ties can provide to the entrepreneur.

Types of Contacts

During the early stages of entrepreneurial venture creation, entrepreneurs search their external environment to determine actors that can assist them. Birley (1985) examined the extent to which an entrepreneur interacts with their networks during the process of starting a new firm. Her findings showed that formal networks were hardly used and that informal networks were used often. That an entrepreneur's informal contacts, mainly business contacts were the most helpful in assembling elements of the business. Family and friends were most useful when local issues were being dealt with by the entrepreneur (Birley, 1985). Whereas the informal networks of family and friends, previous colleagues, previous employers were less informed about options and schemes open to the entrepreneur and were more willing to listen and give advice (Birley, 1985, p.109). However, informal ties also negatively affect opportunity perception in some instances. In contrast to Birley's findings (1985), Bhagavatula, Elfring, Van Tilburg and Van De Bunt's (2010) research showed how social capital and human capital can influence an entrepreneur's ability to recognize opportunities and mobilize resources. They found that individuals with higher levels of experience were able to mobilize more resources, but it came at the cost of loss in opportunity recognition. This occurs because of the homophily as experienced individuals are more likely to associate with those with similar skills and abilities, thereby closing their networks (Bhagavatula et al, 2010). Moreover, their research provided support for the use of informal ties in that stronger ties and connected networks yielded more benefits in some situations. Showing that opportunity recognition and resource mobilization are significant aspects throughout the entrepreneurship process and that closed networks with strong ties are more effective (Bhagavatula et al, 2010, p. 258). Thus, these two aspects work in conjunction not in isolation of one another. Additionally, that human capital elements such as experience, professional and language skills have a direct and

mediated effect on resource mobilization and opportunity recognition (Bhagavatula et al, 2010, p. 258). This relates to Ardichvili et al's (2003) assertion stating that prior experiences significantly influence opportunity perception; also serving as a re-enforcement of perceived capability (Gist, 1987). Therefore, a mix of both dense networks with strong ties and structural holes with weak ties are optimal for entrepreneurs (Bhagavatula et al, 2010, p. 259). Their research showed the importance of ties and how they affect different aspects within the venture creation process, providing support for research that advocates for a mix of ties rather than focusing on one type of tie (Uzzi, 1997; Renzulli et al 2000; Jenssen & Greve, 2002).

Network exposure

Additionally, one's access to ties, particularly how they are exposed to ties within networks can impact opportunity recognition. Moreover, research by Arenius & De Clercq's (2005) discussed the importance of proximity to networks in how an entrepreneur is exposed to networks are influenced upon the possession of human capital traits. These human capital attributes in turn influence the types of networks that they belong to and the individuals comprised within them. Their findings showed that large agglomerates increased the likelihood to perceive opportunities when compared to rural settings as they have greater access to large organizations and greater set of indirect contacts (Arenius & De Clercq, 2005, p.260). Also, that there is a positive relationship between education level and likelihood in recognizing opportunities, due to the fact that higher education increases exposure to 'knowledgeable others' that carry valuable information (Arenius & De Clercq, 2005, p.261). Thus, geographical proximity can impact network access and human capital factors can affect how networks are used and the value derived from them.

Sources of information

Embeddedness within networks not only impacts resource mobilization, but it also increases opportunity recognition by using contacts to gain knowledge and support that facilitate recognition. Jack and Anderson's (2002) research investigated the role that embeddedness plays in shaping and sustaining business, proposing that recognition and realization of opportunity were affected by an entrepreneur's roles within their social structure. They examined how entrepreneurs use structure to create and operate their businesses, exploring the nature of embeddedness to understand the entrepreneurial process. The authors found that being embedded within networks provided entrepreneurs with intimate knowledge, contacts and sources of advice, resources, information and support. This in turn allowed the entrepreneurs to recognize and understand what was required and available; the structure influenced the perceptions of the entrepreneur in recognizing business opportunity and potential (Jack & Anderson, 2002). Allowing the entrepreneurs to create a 'vision that contributed to their success'; network embeddedness enabled them to convince those within their networks that their venture was viable (Jack & Anderson, 2002, p.478). An entrepreneur's inclusion within a social network provides innumerable benefits: it can enhance support, provide access to knowledge, resources and relevant contacts that working solely in isolation cannot provide. Furthermore, the ties that networks provide influence other aspects within the entrepreneurial recognition process. Ozgen and Baron (2007) explored how sources of information impact opportunity recognition for entrepreneurs by focusing on mentors, close friends, industry networks and professional forums. The main difference between their research and other studies was that they included the mediating effects of two variables: schema strength through use of mental frameworks developed through experiences and self-efficacy by examining an individual's belief that they can successfully accomplish a task. Their findings

showed that informal industry networks and mentors were related to entrepreneurs' alertness to new opportunities, however, that close friends did not impact opportunity recognition. For mentors, they provide valuable information through sharing their extensive experience (Ozgen & Baron, 2007). Similarly, professional forums can increase the access to knowledgeable individuals because it focuses on information exchange. Additionally, mentors and professional forums are mediated by schema strength in that having a mentor and participating in forums impacts schema strength thereby increasing opportunity recognition (Ozgen & Baron, 2007). Similarly, informal industry networks are mediated by self-efficacy, by using such a network an entrepreneur's self-efficacy increases and self-efficacy impacts opportunity recognition (Ozgen & Baron, 2007). The high levels of self-efficacy allow entrepreneurs to gather and use the information provided by their large social networks to identify viable opportunities (Ozgen & Baron, 2007, p.188). Moreover, schema strength was significantly associated with self-efficacy in that prior experience and knowledge increases the likelihood of new venture creation (Ozgen & Baron, 2007). Their research showed specifically how different sources of information can positively or negatively impact opportunity recognition. Also, showing that close friends did not impact recognition, other research has showed that close friends provide access to similar networks (Granovetter, 1973; Aldrich & Zimmer, 1986; Bhagavatula et al, 2010) perhaps this impacts recognition.

In summary, intentions and perceptions are impacted by embeddedness as an entrepreneur's network of contacts can serve as source of motivation and their cognitive functioning in how they frame and interpret outcomes. Moreover, it can determine their access to resources and information that is characterized by the types of contacts that they possess through their fixed human capital attributes.

2.3 Social capital and entrepreneurship

2.3.1 Social capital as a construct

When entrepreneurship is discussed, the importance of the social context in which the enterprise is embedded is not discussed in depth and how those specific actors can benefit entrepreneurs throughout their process. When differences between, amongst and across different dimensions are considered, one element is crucial. Minniti and Nardone (2007) found that socio-economic factors do not account for differences between genders; rather it is perceptual variables such as opportunity recognition, self-confidence, fear of failure, and knowing other entrepreneurs (p.236). Prior definitions of entrepreneurship focused on the process of entrepreneurship and its components and not the aspects or dimensions in which it is comprised, particularly social elements of the venture creation process. Therefore, some researchers (Aldrich& Zimmer, 1986; Anderson & Miller, 2003) argue that a semantic broadening of the definition occur, as entrepreneurship is a social activity embedded in networks of continuing social relations. Thus, we cannot view entrepreneurship as an isolated activity it is contingent upon the social dynamics occurring within society and business. Therefore, since entrepreneurship is considered a social activity, the relationship between social capital and its influence on entrepreneurship needs to be examined.

Burt (1997) makes the distinction between social capital and human capital, in that social capital is “quality created between people, and human capital is a quality of individuals” (Burt, 1997, p.339). Therefore, social capital relates to resources that are deeply embedded within relationships (Burt, 1992).

2.3.2 Relationship dynamics of social capital

Within those relationships, we can derive certain benefits and the dynamics within those relationships differ based on the type of relationship. Warde and Tampubolon (2002) studied whether different types of networks produce benefits in a complementary or separate manner. By examining associational membership and friendship ties separately to determine whether familiarity or enthusiasm for particular practices is associated with levels and types of social capital in producing similar effects or differences through both channels (Warde & Tampubolon, 2002, p.159). By analyzing socio-economic data, they found that men had higher engagement in activities than women and that possessing economic and cultural capital increases levels of involvements in leisure activities. Thereafter they found that membership in several types of associations can increase involvement and that associations lead to more increasing an individual's diversity in their ties. Also, that membership in associations is based on practical pursuits rather than solely an indication of interest (Warde & Tampubolon, 2002). However, the type of friendship has different qualities within social capital, it has more of an effect on some activities and less on others (Warde & Tampubolon, 2002, p.173). Thus, social capital from associational membership operates in a different way than that of solely friendship ties (Warde & Tampubolon, 2002, p.173). When friendships are analyzed the findings showed that people who engage in activities that attract both men and women and from all age groups tend to have more diverse sets of friends. Also, that friendship generates forms of identification, emotional solidarity and fosters a sense of common identity (Warde & Tampubolon, 2002, p.174). Thus, friends have a different effect than other types of acquaintances, consultations with friends is more obligatory when compared to other relationships (Warde & Tampubolon, 2002, p.174). It is the relationships that an entrepreneur possesses and how they utilize them that are of utmost importance. Burt (1992) also notes that

social capital is based on similarity, shared affiliation and activities. Individuals in a sense are predisposed to associate with other like-minded individuals. However, social and human capital are complements as stated by Burt (1997) in that one's intelligence, education and seniority depend on a person's location within the social structure of a market or hierarchy (Burt, 1997, p.339). Thus, one's ability to gain additional returns on human capital elements is contingent upon one's social network and one's position within it. This is an important characterization of social capital in its application to social networks.

Davidsson and Honig (2003) examined the interplay between human capital and social capital and its influence during the early stages of entrepreneurship, focusing on discovery and exploitation. They found that social capital influenced both discovery and exploitation in that having parents, close friends or neighbours that owned businesses increased the likelihood of venture creation. Similarly, encouragement from family and friends and membership within business networks increased the likelihood of exploitation of opportunities for individuals (Davidsson & Honig, 2003, p.322). Brush et al (2002) examined the social structures in which women socialize, asserting that it influences their social capital endowments during the venture creation process. Showing that differences in terms of the gender effect had significant consequences as entrepreneurship is a male dominated field. Therefore, women might not have access or the opportunity to create a rich social network that facilitates growth. The aforementioned human capital elements may negatively impact their ability to grow and sustain such networks.

Therefore, before one can acquire social capital, their early experiences and exposure could impact whether they have access to spaces that provide useful contacts. Anderson and Miller (2003) researched entrepreneurs from different socio-economic backgrounds to determine how status impacts access to social capital. Individuals from higher socio-economic backgrounds did not rely

on personal ties for financial support and they were more likely to use their external ties to seek advice (Anderson & Miller, 2003). Additionally, they often sought out individuals from a similar social class (Anderson & Miller, 2003). Conversely, those from lower socio-economic backgrounds received both financial and other forms of support from those within their own social class (Anderson & Miller, 2003). Thereby restricting their access to higher quality forms of social capital (Anderson & Miller, 2003). Those with a higher social class standing benefited the most from their social capital (Anderson & Miller, 2003). Their findings validate earlier research that found that ties within networks were crucial to the success of a business, particularly strong ties such as family and friends during the early stages of entrepreneurship (Aldrich & Zimmer, 1986, p. 20). As family and friends are deemed to be bonding social capital in that they are comprised of homogenous individuals that are closely knit together, they can provide emotional support (Putnam, 2000). Whereas business networks are external networks providing resources such as information serve as bridging social capital because they contain heterogeneous members (Putnam, 2000). Thus, socio-economic factors that may hinder access to social capital is significant.

2.3.3 Business Performance

Additionally, these social and human capital elements can have an effect on business performance. Also, the social capital that entrepreneurs have access to can determine how they are oriented as a firm in being innovative or risk taking. Stam and Elfring (2008) examined how social capital embedded within a new company's intra- and extraindustry ties can impact the relationship of a firm's entrepreneurial orientation and its performance. Their quantitative research focused on a single industry within the Netherlands, open source software, they used a hierarchical regression

analysis to determine how intraindustry network centrality and extraindustry bridging ties can influence the relationship between entrepreneurial orientation and performance (Stam & Elfring, 2008, p.98). Their findings showed that the configuration of intra and extraindustry social capital has positive and negative performance effects on firm orientation, in that only high network centrality and extensive bridging ties influenced the relationship between orientation and performance (Stam & Elfring, 2008, p.107). Additionally, when examining the role of the moderating effect of network centrality, it was insignificant in that centrality has a negative relationship with performance, occurring only when centrality is high (Stam & Elfring, 2008). Therefore, in order to positively impact performance, entrepreneurs need to complement their network positions with access to extensive ties that provide greater access to variety of resources. Thus, social capital of firms can also impact an entrepreneurial firm's strategy as the business contacts it has access to can either increase the firm's profitability or lead to its demise due to the poor quality of knowledge flows. Ostgaard and Birley (1994) investigated the relationship between personal networks and a firm's competitive strategy by examining the manner in which contacts are utilized. They identified strategy variables for dimensions of product or service innovation, marketing, differentiation and focus or scope by using a factor-analysis approach. The factor analysis revealed six components being market differentiation, product innovation, broad market segmentation, distribution, growth through outside capital, differentiation through quality (Ostgaard & Birley, 1994, p.290). Thereafter six clusters were identified: patented and focused product innovation, distributors, cost leaders or simply firms in trouble, aggressive innovation and marketing firms, no clear strategic orientation, product offering. The clusters showed varied results, for cluster 1 the focus was on the content of their network exchanges and they had larger percentage of strangers. For clusters two and for they were focused on distribution marketing,

cluster two had a smaller network than cluster 4 which served larger geographic markets, cluster four aimed to maintain existing contacts. For cluster 5 they were not aligned with a strategy and did not value networking. The last cluster, cluster 6 had a broad range of products and used many distribution channels, thereby spending more time developing and maintaining contacts with customers. Thus, entrepreneurs have personal networks that internally match their conceptual frameworks for their business in that a relationship exists between an owner's networking activities and how they manage their firms (Ostgaard & Birley, 1994).

Bosma, Van Praag, Thurik, and De Wit (2004) explored how general and specific investments in human and social capital of founders can impact business performance. They focused on entrepreneurship specific and industry specific investments of both forms of capital. Compared to other variables, human capital focusing on former experiences of the business founder impacted both performance measures of profits and sales growth (Bosma, Van Praag, Thurik, & De Wit, 2004, p.231). For social capital, exposure to other entrepreneurs, business relationships using contacts that provide information through commercial relations is significant in impacting performance. Also, emotional support provided by spouses impacts performance and gender is significant in that male business founders perform better on all performance measures (Bosma et al, 2004, p.232). This shows that differences in gender create impediments for female entrepreneurs. Therefore, female entrepreneurs could utilize their connections in a different manner. Bruderl and Preisendorfer (1998) found that support from personal networks had positive impact on survival and growth. Researchers (Aldrich & Zimmer 1986; Bruderl and Preisendorfer 1998; Minniti & Langowitz 2007) agree that female entrepreneurs are influenced by their social networks, in that women are more likely to rely on their social networks particularly their families, self-employed parents serve as resources for support throughout the entrepreneurial process (Greve

& Salaff, 2003). Conversely, men used familial support networks solely during the motivation stage of entrepreneurship (Greve & Salaff, 2003, p. 16). This distinction between men and women in terms of how and when social networks influence entrepreneurship shows the gap in the research that exists and needs to be explored further.

In light of the research discussed it is evident that social capital plays a significant role in impacting a new venture's success. The interaction between human and social capital elements is important as it can facilitate or constrain entrepreneurs due to restriction in accessing spaces because of socio-economic differences. Also, the composition of one's social network is significant, it can affect how the contacts within the network interact with one another.

2.4 Networks and entrepreneurship

As the benefits of social capital for entrepreneurship have been discussed, how social networks influence entrepreneurship needs to be examined. Brass (1992) states that social networks are defined by a set of actors including individuals and organizations and the set of linkages between the actors, in that social networks focus on how individuals are connected to one another and the implications that occur as a result of those connections. Thus, the dynamics of an entrepreneur's network will be further examined in terms of how their networks are formed and the composition for their networks in terms of configuration. In addition, the benefits that the specific network configurations provide and the types of ties that are most beneficial to entrepreneurs in impacting venture formation.

Network Characteristics

Aldrich and Zimmer (1986) propose that entrepreneurship is embedded within networks of continuing social relations (p.8). Moreover, they assert that social networks describe a relation or transaction between two people. These relationships contain “1) a communication context, or the passing of information from one person to another; 2) exchange content, or the goods and services two persons can exchange; and 3) normative content or the expectations persons have of one another because of some special characteristic or attributes. The strength of ties depends upon the level, frequency and reciprocity of relationships between persons and can vary from weak to strong” (Aldrich & Zimmer, 1986, p.11). Brass (1992) expanded on Aldrich’s definition stating that social networks are defined by sets of actors including individuals and organizations and the set of linkages between these actors. The author also notes that social networks focus on how individuals are connected to one another and the implications that occur as a result of those connections. Thus, networks can influence how entrepreneurs can access relevant contacts that provide resources. The position that one holds within the network can affect resource flows. An entrepreneur’s network density, the extent to which all an entrepreneur’s contacts are interconnected can either increase access to resources or restrict access to new knowledge (Burt, 2000). Hansen (1995) found that a density increase in the members of action sets, that are subsets of an entrepreneur’s network that includes individuals that are directly involved in contributing knowledge and resources, positively impacted new venture creation. Thereby, showing that density and size influence entrepreneurial behaviour. Burt (1992) states that dense networks create structural holes or gaps that exist between two individuals with complementary resources. These structural holes create opportunities for individuals that are able to bridge ties to link separate groups. This is significant for entrepreneurship because identifying and exploiting opportunities

are linked to occupying a bridging position within certain networks (Burt, 2000). Thus, an entrepreneur's ability to leverage their position within networks in which they are embedded in provides with strategic value and strong bargaining power. This occurs because of their ability to disseminate critical information to other actors within the network. Another aspect that is critical in terms of network positioning is centrality, it measures an entrepreneur's ability to reach other actors within the network (Hoang & Antoncic, 2003, p.171). High centrality individuals within the network are able to server three main functions "1) they serve as communication channels between distant persons, 2) they provide brokerage services linking third parties to one another by transferring resources, 3) if they are dominant or high status they may serve as role models using their position to direct the behaviour of others within the network" (Aldrich & Zimmer, 1986, p.13).

Network Formation

Larson and Starr's (1993) research proposed a network mode of organization formation through describing the connection between the essential relationships of an entrepreneur and their resource providers during the creation of the business. The authors discuss the three stages of networking activity that occur during venture creation 1) focusing on the essential dyads, 2) converting dyadic ties to socio-economic exchanges, 3) layering the exchanges with multiple exchange processes (Larson & Starr, 1993, p.6). The authors state that during the first stage entrepreneurs interact with a diverse group of resource partners ad opportunistically evaluate them, adding suitable contacts into their networks. They also found that these early networks consist of former business contacts, family, friends that provide physical and capital resources, sales and social support. Then the authors note that the entrepreneur opts to maintain or drop certain contacts, also during this

period they allow other relationships to evolve further, ultimately narrowing their ties to essential contacts that will facilitate the business creation process. The second stage involves transforming the relationships by adding social aspect to form an economic and social exchange. The entrepreneur becomes more involved with their contacts to foster mutual interests by emphasizing trust, norms of reciprocity, investment in mutually beneficial goals and organizational interdependence (Larson & Starr, 1993, p.9). Lastly, during the third stage additional business functions, activities and levels of exchange are added to the socio-economic relationship (Larson & Starr, 1993). This occurs as a result of the embeddedness of the relationships based on economic and social aspects. Therefore, entrepreneurship involves the combination of three networks: social, business and strategic throughout the formation process (Larson & Starr, 1993, p.12). Moreover, when the stages of entrepreneurship are further examined through empirical studies the results are similar Greve and Salaff (2003) investigated how social networks are used during three stages of entrepreneurship. The stages being 1) motivation, in which ideas are discussed; 2) planning during which the firm is set up; 3) establishment in which entrepreneurs establish and run the firm (Greve & Salaff, 2003). The authors found that during phase one, entrepreneurs relied on their closest contacts, during phase two they enlarged their discussion network and during phase three they reduced their network to include only important and external members. Thereby, spending less time networking when compared to prior phases (Greve & Salaff, p.13). Thus, for entrepreneurship to flourish, ties must be utilized in a manner that allows the entrepreneur to derive maximum value. Stuart and Sorenson (2005) assert that entrepreneurship affects two main activities: identification of resources and the mobilization of resources to exploit it. Social networks affect both activities by influencing information flows and capital flows, providing the entrepreneur with the necessary connections to facilitate exchanges. These two main activities are critical for the entrepreneurial

process as access to information and capital can determine whether an entrepreneur possesses the knowledge required to succeed in the market and sufficient financial capital. Therefore, the network structure of an entrepreneur, as well as the direct and indirect connection between actors within the network are critical components of the venture creation process.

Network Composition

Thus, the composition of an entrepreneur's social network significantly impacts outcomes (Granovetter 1973; Bruderl & Preisendorfer, 1998; Renzulli, Aldrich & Moody, 2000; Jenssen & Greve, 2002; Jenssen & Koeing, 2002; Elfring & Hulsink, 2003; Jack 2005). Renzulli, Aldrich and Moody (2000) investigated how two main factors: heterogeneity and composition within an entrepreneur's network impacted entrepreneurial intentions. The authors found that individuals comprised within an entrepreneur's network acted as discussion partners that provided valuable information during the early stages. In addition, they demonstrated that individuals that draw from multiple sources with higher heterogeneity and lower percentage of kin were more likely to start a business than those with homogenous networks. Moreover, in terms of gender effects they found that women's networks were comprised of more homogenous ties than those of men. These results support Granovetter's (1973) assertions that individuals with contacts in different areas of a network have greater access to resources and information. Granovetter's (1973) seminal study proposed a contradictory theory to general network aspects, he affirmed that strength of ties lay within one's weak ties. He stated that those ties that were not familiar to an entrepreneur were more beneficial. Moreover, the attributes that determine the strength of a tie occur through the "combination of: amount of time, emotional intensity, intimacy and the reciprocal services that characterize it" (Granovetter, 1973, p.1361). This shows how ties can enable or inhibit access to

resources or information. It also demonstrates that entrepreneurs use different ties for different reasons. The fundamental principle of this research was that weak ties contribute to success, more specifically, weak ties facilitate diffusion of information because they can travel a greater social distance to a larger number of people than strong ties. In contrast, strong ties exhibit more clique behaviour due to the homogeneity of ties, increasing the likelihood of ties being interlinked. The closeness of ties allows for similar information to be transmitted through them.

Strength of ties and redundancy

Thus, the dissemination of redundant information amongst strong ties occurs more frequently. To further examine this concept Janssen and Greve (2002) explored how the degree of social redundancy for entrepreneurs impacted the success of start-ups. The authors found that redundancy had no direct effects on business start-up success; instead it impacted access to information and support. Also, their findings showed that strong ties provide financial resources; higher amount of support was provided when strong ties were increased within networks (Janssen & Greve, 2002, p.261). Additionally, higher redundancy combined with high number of ties affects access to information; connected networks have higher trust, this in turn increases network members willingness to share information (Janssen & Greve, 2002, p.262).

Tie strength and innovation

Although connected networks exhibit higher trust and share more information, dissemination alone is not sufficient, the quality of the information being shared is significant. As it poses implications for entrepreneurs, in regard to their firm's orientation. If they are a high technology-oriented firm they will not have access to networks that diffuse knowledge facilitate rapid innovation across

linkages. Elfring and Hulsink (2003) examined three entrepreneurial processes: the discovery of opportunities, securing resources and obtaining legitimacy in determining how strong and weak ties influence these processes. Also, they focused on how the degree of innovation of firms impacts network ties. They explored how high technology firms use personal and business networks to create and maintain conditions for growth. The authors found that for resource assembly, strong ties were used most in both incremental and radical innovation firms (Elfring & Hulsink, 2003, p.421). Additionally, weak ties were most beneficial for discovering opportunities in incremental innovation, whereas for radical innovation strong ties were utilized because of the higher trust levels and their ability to provide tacit information exchanges (Elfring & Hulsink, 2003, p.419). For legitimacy, the authors found that cognitive legitimacy entrepreneurs used strong ties in exploiting existing knowledge bases by partnering with a research university. However, for socio-political legitimacy weak ties were more useful in reaching a larger market during marketing and distribution campaigns (Elfring & Hulsink, 2003, p.419). This research showed that diversity in linkages are contingent upon the process that the entrepreneur is engaging in and whether the firm's technological capability is compatible with the type of tie used. Also, strong ties are useful because of the increased likelihood of interconnectedness between contacts, the stronger the tie between two contacts the greater the likelihood that a third contact with no affiliation to one of the contacts will have a tie as a result of sharing a common strong tie (Granovetter, 1973). One's friends of friends are likely to be friends as the amount of interactions between them increases naturally over time.

Tie strength and support

Thus, social networks provide access to relevant information that can be disseminated rapidly, increasing the propensity for entrepreneurship and new venture success. Although, networks provide access to knowledge, they serve as a support mechanism for financial and emotional support. Bruderl and Preisendorfer's (1998) investigated how network resources, activities and support are used by entrepreneurs to establish their firms. The authors found that weak ties were most beneficial, contradicting Granovetter's position that weak ties provided the greatest benefit. Also, female founders receive more support from their strong ties and more active help from their spouses and more emotional support (Bruderl & Preisendorfer, 1998, p.219). The authors found that stronger ties and familial support were critical in impacting entrepreneurship and small business formation when compared to weak tie sources. Moreover, they found that the soft measure of emotional support from spouses had significant effects on venture formation, demonstrating that support from one's familial network increases success (Bruderl & Preisendorfer, 1998, p.223). Therefore, perhaps it is not that weak or strong ties are more influential than the other, rather it is that the combination of both types of ties and how an entrepreneur utilizes the that is the determining factor in increasing successes. Another study that demonstrated the usefulness of strong ties is the research of Jenssen and Koeing (2002) that investigated the relationship between social networks and resource access in affecting entrepreneurship. The authors aimed to determine how strength of ties affects resource access to find out how resource access can influence the likelihood of success for a new venture (p.1039). Their findings showed that large differences due to strength of ties were not significant in creating discrepancies in gaining access to financial and information resources. Thus, entrepreneurs should utilize both weak and strong ties, irrespective of tie strength, as information, motivation and

resources can be accrued through both strong and weak ties (Jenssen & Koeing, 2002, p.1045). Jack's (2005) research further examined whether Granovetter's assertions were correct; by examining the networking activities of a group of respondents, to better understand the strong and weak ties theory. More specifically, the author aimed to determine the role of ties in affecting individuals and how ties were used and activated for business activity (p.1234). The findings showed that strong ties were mainly activated by entrepreneurs when obtaining information and drawing resources. Thus, these results contrasted Granovetter's theory. In addition, the author found that strong ties served as an activation for links within a wider social context, the strong ties acted as nodes supplying support and sustaining the entrepreneur's business. These strong ties extended networks and knowledge about the business; the contributions of strong ties influenced the decisions made by entrepreneurs (Jack, 2005, p.1252). However, not all strong ties were activated by entrepreneurs they were used only when a necessary need arose (Jack, 2005).

In summary, networks play a significant role within the entrepreneurial process as they provide a multitude of benefits ranging from access to resources, relevant knowledge, emotional support, capital. This in turn can impact an entrepreneur's innovativeness and ultimately the firm's orientation as the contacts they are exposed to can foster or impede it. However, certain aspects must be evaluated that can affect the value derived from the network such as the density, breath and reach of the network, the types of ties and the position the entrepreneur holds within their network.

2.5 Social embeddedness within countries

At the country level the research focused on cultural orientations, openness and institutional support. In that the dynamics and aspects that can foster entrepreneurial success, in terms of support are demonstrated through the social capital that lies within a country. There are societal characteristics that can influence behaviour, as entrepreneurship is heavily embedded in social contexts, the perception of entrepreneurship at a national level is examined.

2.5.1 Cultural Orientation

Wennberg and Pathak and Autio's (2013) research examined how individual perceptions and motivations to create a business are dependent upon informal institutions such as culture and behavioural norms. Their findings showed that institutional collectivism and uncertainty avoidance moderate an aspiring entrepreneur's fear of failure and self-efficacy in determining their likelihood of creating a new venture. Thus, perceptions and motivations as gauged by self-efficacy are impacted when institutional collectivism and uncertainty avoidance coupled with fear of failure and self-efficacy are accounted for in entrepreneurship. An individual's context in which they are embedded impacts perceptions, in that changes within the cultural context influences how individuals behave (Wennberg, Pathak, Autio, 2013, p.774). Additionally, how different countries utilize social networks is important as different cultures focus on the utilization ties in a distinct manner. Dodd and Patra's (2002) research used Hofstede's four-dimensional model to examine if differences existed in how entrepreneurs use networks. They studied the nature of Greek entrepreneurial networking and compared it to other nations (Dodd & Patra 2002, p.120). Greeks utilize strong ties in the form of family and friends, these ties are tightly knit together by contacts and other network members. In addition, these strong ties provide them with access to secondary

networks. Additionally, their research highlighted the importance of culture in shaping the nature of entrepreneurial networks, in that contextualist approaches to entrepreneurial activities must be examined because culture plays a significant role (Dodd & Patra 2002, p.131). Thus, the research focused on how cultural dynamics and values embedded within nations impacts how individuals within those countries organize and utilize their social networks.

2.5.2 Cultural Supportiveness

One of the few studies that directly assessed social capital and entrepreneurial outcomes at the country level was Kwon and Arenius' (2010) study that examined how social capital at the country level explains cross-national variation in entrepreneurial perception and weak tie investment. As entrepreneurship involves seeking new opportunities and investments and that the ability to recognize entrepreneurial and investment opportunities is impacted by social context, embeddedness in the social context is shaped by social capital (Kwon & Arenius 2010, p. 316). They found that the social context of an entrepreneur, particularly social capital at the country level impacts entrepreneurship and that entrepreneurial activities are jointly determined by individual and contextual level factors (Kwon & Arenius 2010, p. 326). Additionally, at the individual level those who perceive entrepreneurial activities or invest in a weak tie share common personal attributes that are distinct from those who do not, irrespective of their national context (Kwon & Arenius 2010, p. 326). Moreover, in terms of gender, the researchers found that women were less likely to report that they perceived entrepreneurial opportunities or invested in a stranger's good idea, perhaps because women have lower social capital at the individual level and contributes to their lack of opportunity perception and to their reliance on strong ties (Kwon & Arenius 2010, p. 327). Therefore, country level factors in terms of how the culture operates in its openness and support can facilitate or impede entrepreneurship. Stephan and Uhlaner's (2010) research

illustrated the relationship between dimensions of culture in terms of whether a culture is socially supportive, or performance based and how it impacts entrepreneurship rates. By specifically examining the extent to which descriptive norms can influence entrepreneurship through demand side variables such as opportunity existence and entrepreneurial framework conditions and supply side variables such as entrepreneurial social desirability and self-efficacy (Stephan & Uhlaner, 2010, p.1351). Their findings showed that performance-based cultures do not predict entrepreneurship rates and are not linked with social desirability of entrepreneurship, that performance-based cultures predict two main demand side variables, opportunity existence and entrepreneurial framework conditions. Thus, performance-based cultures impact the creation of efficient formal institutions that affect entrepreneurial opportunity recognition. (Stephan & Uhlaner, 2010, p.1357). Moreover, that social capital aspects such as friendliness and cooperativeness of a culture has a positive effect on both the level in terms of business owner rates and quality of national entrepreneurship for innovative business rates. Also, they found that socially supportive cultures positively affect social desirability of entrepreneurship as a profession because societies with higher social capital are more inclusive. Additionally, socially supportive cultures influence opportunity recognition in that it increases the number of weak ties within a population thereby impacting the number of opportunities discovered (Stephan & Uhlaner, 2010, p.1358). Therefore, cultures that are socially supportive have a more significant impact on entrepreneurship levels. Social capital as embodied within cultural attributes can significantly affect entrepreneurship, more receptive and supporting cultures influence how entrepreneurship is perceived within a society thereby directly aiding rates of venture creation. Another consideration is how the institutional factors of a country can affect entrepreneurship in terms of the environment. Similarly, Stephan and Uhlaner's (2010) discussion of socially supportive cultures can be

extrapolated as a social network dimension because of how it impacts motivations, a key component of entrepreneurial intention and perception.

2.5.3 Institutional Context

De Clercq, Lim and Oh's (2013) investigated whether and how the institutional context of a country can affect individual level resources that facilitate new business creation. They focused on the moderating role of a country's formal institution in the form of financial and educational systems and informal institutions such as trust and cultural values. They determined the cross-level interaction effects of individual level resources with country level institutions in impacting the likelihood of venture creation (De Clercq, Lim & Oh, 2013, p.317). Their results showed that access to different types of capital such as financial, human and social impacts entrepreneurship. Additionally, that country level institutions affect individual human capital such as knowledge, skills and experience and social capital through access to entrepreneurial role models. However, the exploitation of human and social capital varies because of the need to complement access to external resources with the country's financial and educational system. Also, that trust can be used to leverage individual exposure to entrepreneurial role models. In contrast, financial capital was not impacted by institutional settings (De Clercq, Lim & Oh, 2013, p.317). Social embeddedness in terms of countries acting in a supportive manner towards entrepreneurs can increase rates of entrepreneurship domestically. The cultural level factors influence behavioural norms that impact an entrepreneur's individual actions, if the society is not receptive it can impede new venture creation.

3. Hypotheses

Therefore, since the literature review provides support for social embeddedness in networks impacting entrepreneurship, we will use aspects that the research shows as factors for embeddedness (Birley, 1985, Aldrich & Zimmer, 1986; Bruderl & Preisendorfer, 1998; Anderson & Miller, 2003; Davidsson & Honig, 2003; Greve & Salaff, 2003; Minniti & Langowitz, 2007).

3.1 Family Support

Birley (1985) demonstrated the importance of informal networks such as family in that they provided support through listening and advice giving. The informal networks served as a mechanism for exchanging and discussing venture ideas within a supportive environment. The entrepreneur's informal network was a safe space to discuss ideas in-depth with trusting sources in a judgement free environment (Birley, 1985). Family support provides encouragement for entrepreneurs, increasing the likelihood of exploitation of opportunities (Davidsson & Honig, 2003, p.322). The encouragement provided supports the entrepreneur in realizing their potential because it serves as a reinforcement that they their ideas can be transformed into profitable ventures. Familial support impacts entrepreneurship throughout different stages of the entrepreneurial process (Greve & Salaff, 2003). During early stages of entrepreneurship, entrepreneurs rely on stronger ties such as kin to discuss their ideas and receive support. Bruderl and Preisendorfer's (1998) research showed that strong ties provided more emotional support and active help than weak ties. In addition, receiving support from strong ties such as kin can positively impact survival rates for new firms (Bruderl & Preisendorfer, 1998). Thus, family significantly impacts entrepreneurial survival rates, the relationship between familial support and intention and perception directly has not been discussed as extensively.

H1a: Familial support has a positive effect on entrepreneurial intention

H1b: Familial support has a positive effect on entrepreneurial opportunity perception

3.2 Support from friends

Strong ties have been shown to positively impact entrepreneurship, friends can offer support through listening to early stage ideas and providing early stage funding by investing (Aldrich & Zimmer, 1986). Moreover, support from friends can positively impact survival of new ventures (Bruderl & Preisendorfer, 1998). Larson and Starr (1993) posit that networks activated for new venture formation follow a three-stage sequence of development, finding that during the first stage, key activities focused on identifying contacts that provide critical resources to the firm, particularly using close contacts such as friends. In addition, Anderson & Miller (2003) study examined the impact of class in influencing social capital, their findings showed that how strong ties are used is determined by class. More affluent individuals use friends as solely a non-monetary support system, whereas lower economic status individuals used friends for both financial and emotional support. Thus, influencing an entrepreneur's access to resources and capital because their existing networks are the only resources available, homophily within networks can impact venture creation. Therefore, network composition in terms of possessing valuable connections that can provide access to resources is critical. Elfring and Hulsink (2003) examined three entrepreneurial processes: the discovery of opportunities, securing resources, and obtaining legitimacy to determine how strong or weak ties influence them, additionally how the degree of innovation impacts the network ties. Their findings showed that for resources, strong ties were most used in both incremental and radical innovation firms (Elfring & Hulsink, 2003, p.421). Moreover, for radical innovations strong ties were used because they provided tacit information exchange and

trusted feedback (Elfring & Hulsink, 2003, p.419). Although the importance of friends has been investigated extensively, the impact on intentions and perceptions has not been studied in depth.

H2a: Support from friends has a positive effect on entrepreneurial intention

H2b: Support from friends has a positive effect on entrepreneurial opportunity perception

3.3 Professional Association Membership Support

Davidsson and Honig (2003) explored the relationship between human capital and social capital in influencing the early stages of the entrepreneurial process focusing on discovery and exploitation. Professional associations have been shown to impact entrepreneurship levels as they provide access to invaluable resources that facilitate new venture growth (Davidsson & Honig, 2003). During the business execution stage entrepreneurs spend less time networking and rely on ties that bring value to their ventures through more targeted networking (Greve & Salaff, 2003). Elfring and Hulsink's (2003) research for incremental and radical innovations showed differences on how ties were used in high technology firms. They found that weak ties were beneficial for incremental innovations in discovering opportunities, also that weak ties were used by firms seeking socio-political legitimacy in reaching larger markets. Shane and Cable (2002) investigated how social ties influence investment decisions of venture capitalist firms, showing how investors use their social ties to obtain private information. Their findings also showed that most funded proposals for venture capitalists came from referrals, particularly when public information was not available for entrepreneurs. Elfring & Hulsink's (2007) research examining how entrepreneurs shape their network of strong and weak ties, how initial founding conditions of whether firms were independent, spin-off, or incubatees and post-founding entrepreneurial processes affect tie-formation processes. They found that for independent start-ups, opportunity perception was influenced by networking using weak ties from business conferences, associations and networking

events (Elfring & Hulsink, 2007, p.1857). However, prior research did not directly explore the relationship between intentions and perceptions and professional membership association.

H3a: Membership in a professional association has a positive effect on entrepreneurial intention

H3b: Membership in a professional association has a positive effect on entrepreneurial opportunity perception

3.4 Gender

Researchers (Aldrich & Zimmer 1986; Bruderl and Preisendorfer 1998; Minniti & Langowitz 2007) agree that female entrepreneurs are influenced by their social networks, in that women are more likely to rely on their social networks particularly their families, self-employed parents serve as resources for support throughout the entrepreneurial process (Greve & Salaff, 2003). Familial support impacts entrepreneurship for both men and women, throughout different stages of the entrepreneurial process (Greve & Salaff, 2003). Bruderl & Preisendorfer (1998) research showed that strong ties were more valuable to female founders as spouses provided more emotional support and active help. They found that the soft measure of emotional support from spouses has significant effects on venture formation, demonstrating that support from one's familial network increases success (Bruderl & Preisendorfer, 1998, p. 223). Additionally, Brush et al's (2002) research focused on the social structures of women, finding that it affects social capital endowments during the venture creation process. Women face significant barriers because entrepreneurship is a male dominated field, they are hindered from having access to create a rich social network that facilitates growth (Brush et al, 2002; Minniti & Langowitz 2007). Renzulli, Aldrich and Moody's (2000) research explored how heterogeneity and composition within an entrepreneur's network impacts their willingness to start a business. Their findings showed that women's social networks are more homogenous in terms of comprising solely of kin compared with men. Contrasting with the

suggestions of classical theorists such as Granovetter (1973) that weak ties are more influential and effective than strong ties. Thus, the most valuable social capital for an aspiring entrepreneur is to obtain networks comprised of dissimilar ties. Therefore, there are differences in how both men and women use their social networks. As evidenced through the studies above gender has been studied as a control variable but not as a moderating variable.

H4a: Female gender and familial support have a moderating positive effect on entrepreneurial intention

H4b: Female gender and familial support have a moderating positive effect on entrepreneurial opportunity perception

H4c: Female gender and support from friends have a moderating positive effect on entrepreneurial intention

H4d: Female gender and support from friends have a moderating positive effect on entrepreneurial opportunity perception

H4e: Female gender and membership in a professional association have a moderating positive effect on entrepreneurial intention

H4f: Female gender and membership in a professional association have a moderating positive effect on entrepreneurial opportunity perception

3.5 Model Framework

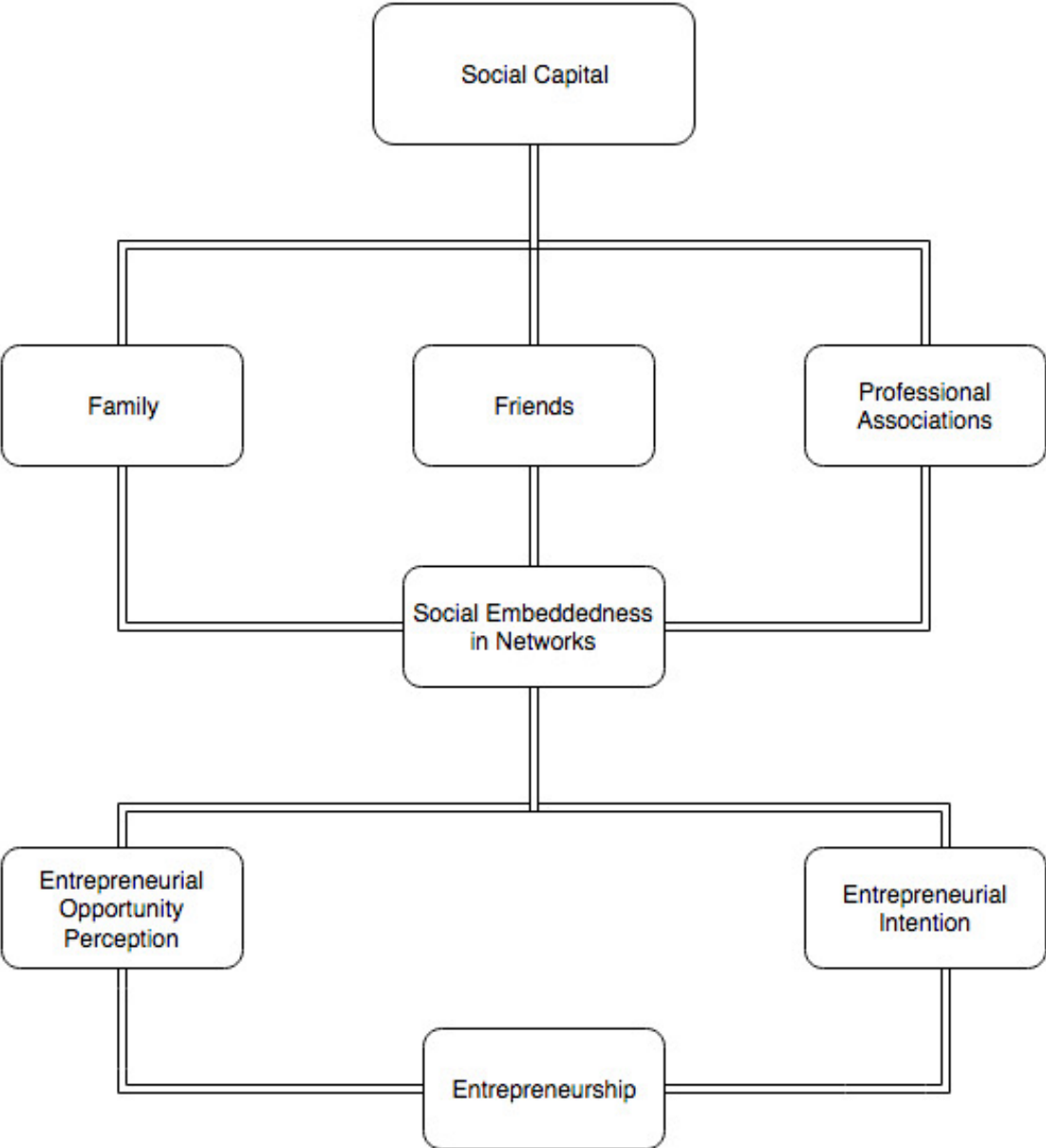


Figure 1. Social Embeddedness in networks and the impact on entrepreneurship

4. Methodology

A quantitative research methodology will be utilized using statistical analyses to examine the relationship between social embeddedness in networks and female entrepreneurial intentions and perceptions.

4.1 Sample

Our sample includes data from 37 countries from the developed and developing world, it is a representative sample of adults aged 18 to 64 years old. The data is individual level data since gender categorization is significant to the study. The data will be collected over a three-year period from 2011 to 2013. The data will be derived from two sources, the Global Entrepreneurship Monitor and the World Values Survey database. GEM is a comprehensive database that has been collecting data about entrepreneurs, by examining behaviours and attitudes at an individual and national level (GEM, 2017). Whereas the World Value Survey is a “the largest, non-commercial, cross-national, time series investigation of human beliefs and values” (WVS, 2017). Both data sets collect quantitative data.

4.2 Dependent Variables

The dependent variable of opportunity perception will be derived from the GEM database. Opportunity perception is measured as whether good opportunities existed for starting a business where the respondents lived. It is measured as a binary variable with a 1=Yes or a 0=No response. Arenius and Kwon (2010) utilized this measure during their research for examining how social capital at the country level explains cross-national variation in entrepreneurial perception and weak tie investment. The second dependent variable, entrepreneurial intention has not been researched in terms of its relation to social embeddedness in networks. It will also be derived from the GEM

database. Intention is measured as willingness to start a business in the next three years. It is measured as a binary variable with a 1=Yes or 0=No response.

4.3 Independent Variables

The World Value Survey responses for importance of family and friends and active membership in a professional organization will be used as a proxy for social embeddedness. The WVS has been used in another study (Arenius & Kwon, 2010) examining country level social capital. The research on entrepreneurship and social networks shows that networks influence entrepreneurship (Aldrich & Zimmer, 1986; Bruderl & Preisendorfer, 1998; Anderson & Miller, 2003; Davidsson & Honig, 2003; Greve & Salaff, 2003; Minniti & Langowitz, 2007). However, the extent to which it impacts solely female entrepreneurs has not been tested. Therefore, we will be using three independent variables, family because familial support systems have been shown to increase entrepreneurship (Greve & Salaff, 2003). For family, the scale values were 1 for very important, 2 for rather important, 3 for not very important and 4 for not important at all. Friends and individuals comprised of one's social circle aid in increasing motivation and opportunity recognition (Anderson & Miller, 2003). For friends the scale values were 1 for very important, 2 for rather important, 3 for not very important and 4 for not important at all. The next independent variable is whether an individual is an active or inactive member of a professional association. The scale for this variable was 2 for an active member, 1 for an inactive member and 0 for doesn't belong. Membership within an organization facilitates entrepreneurship (Davidsson & Honig, 2003). Lastly gender is included as an independent variable, gender is categorized as a 1 for male, and 2 for female in the GEM and WVS database. Gender has an impact on entrepreneurship and how social networks are used (Aldrich & Zimmer, 1986; Bruderl & Preisendorfer, 1998; Greve & Salaff 2003).

4.4 Control Variables

In terms of control variables for the study, socio-economic indicators such as education will be derived from the GEM database. Education from the WVS database was categorized as 1 for no formal education, 2 for incomplete primary school, 3 for complete primary school, 5 for complete secondary school, 6 for incomplete secondary school university preparation, 7 for complete secondary school university preparation, 8 for some university level education without degree, 9 for university level education with degree. In addition to factors that have been shown in the research to influence entrepreneurship such as perceived capabilities needed to start a business as it has been shown to increase opportunity recognition and intention. Also, fear of failure has been shown to adversely affect entrepreneurship levels. Other factors such as knowing an entrepreneur, and gender influence entrepreneurship. For the variable perceived capabilities or (Suskilyy), it will be determined using the percentage of all respondents who say that they have the knowledge, skills, and experience required to start a new business. For fear of failure it is the percentage of all responded that stated a fear of failure would prevent them from starting a business. Lastly, knowing an entrepreneur is the percentage of respondents that personally know someone who started a business in the past two years.

4.5 Interaction Terms

An interaction term was created that combines gender and each independent variable. For instance, to get an interaction term for organizational membership support and gender Org_Gen we multiply organizational membership support with gender using a combined gender term from both the GEM and WVS database. The next interaction term examines support from friends and gender FRD_Gen, to determine this term we multiply gender with support from friends. The last

interaction term observing support from family and gender, FAM_Gen is derived by multiplying gender and familial support.

4.6 Empirics

We will test our hypothesis by analyzing the impact of social embeddedness in networks in determining the likelihood of opportunity perception and entrepreneurial intention for female entrepreneurs while controlling for factors that increase entrepreneurship irrespective of gender effects. We will use a logistic regression to determine the relationship between country level social embeddedness on country level entrepreneurial perception and intention levels. Our dependent variables are categorical or binary, not continuous, thus requiring us to use a logistic regression.

5. Data Analysis and Results

The formula for a logistic regression is as follows:

$$\text{logit}\{P(Y=1|X_1, \dots, X_p)\} = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_p X_p$$

Using our dependent and independent variables, the model we aim to predict for both dependent variables is as follows:

$$\text{logit}\{P(\text{Futsup}=1|X_1, \dots, X_p)\} = \beta_0 + \beta_1 \text{Family} + \beta_2 \text{Friends} + \beta_3 \text{OrgMem} + \beta_4 \text{Gender} + \beta_5 \text{GenderWVS} + \beta_6 \text{Education} + \beta_7 \text{EducationWVS} + \beta_8 \text{Suskill} + \beta_9 \text{Frfail} + \beta_{10} \text{Knowent}$$

$$\text{logit}\{P(\text{Opp}=1|X_1, \dots, X_p)\} = \beta_0 + \beta_1 \text{Family} + \beta_2 \text{Friends} + \beta_3 \text{OrgMem} + \beta_4 \text{Gender} + \beta_5 \text{GenderWVS} + \beta_6 \text{Education} + \beta_7 \text{EducationWVS} + \beta_8 \text{Suskill} + \beta_9 \text{Frfail} + \beta_{10} \text{Knowent}$$

The Pearson correlation matrix and descriptive statistics are presented below followed by the different regression model results.

Table 1. Pearson Correlation Matrix

	1	2	3	4	5	6	7
1. Futsup	1.00						
2. Opp	0.22***	1.00					
3. Suskill	0.247***	0.204***	1.00				
4. Frfail	-0.088***	-0.106***	-0.158***	1.00			
5. Knowent	0.169***	0.214***	0.251***	-0.049***	1.00		
6. OrgMem	0.003	-0.007	0.004	-0.009	-0.018***	1.00	
7. Family	0.001	0.015**	0.012	0.0027	-0.001	0.003	1.00
8. Friends	0.0578***	0.030***	0.028***	-0.002**	0.01	-0.027***	0.14***
9. EducationWVS	0.0110	0.0261***	0.024***	0.0004**	-0.003	0.184***	-0.008
10. Education	0.0154***	0.033***	0.046***	-0.0001	0.059***	-0.034***	0.016**
11. Gender	-0.067***	-0.045***	-0.13***	0.07***	-0.08***	0.006	-0.005
12. GenderWVS	0.013*	0.002	-0.003	-0.07	-0.0001	-0.05***	-0.04***
Mean	0.25	0.43	0.5	0.39	0.36	0.22	1.1
Std Dev	0.43	0.50	0.5	0.49	0.48	0.53	0.35
Min	0	0	0	0	0	0	1
Max	1	1	1	1	1	2	4
N	224699	224957	224956	224952	224958	21598	21598

*p<0.10, **p<0.05, ***p<0.01

	8	9	10	11	12
8. Friends	1.00				
9. EducationWVS	-0.13***	1.00			
10. Education	-0.055***	0.04***	1.00		
11. Gender	0.005	0.012*	-0.001	1.00	
12. GenderWVS	0.0029	-0.067***	0.009	0.002	1.00
Mean	1.68	5.62	1101.1	1.47	1.50
Std Dev	0.75	2.39	462.57	0.50	0.50
Min	1	1	111	1	1
Max	4	9	1720	2	2
N	21598	21598	217937	223233	21598

*p<0.10, **p<0.05, ***p<0.01

Now, the impact of gender on the dependent variables will be examined

Table 2. Gender and Intention and Perception

	Entrepreneurial Intention	Entrepreneurial Intention	Entrepreneurial Perception	Entrepreneurial Perception
Gender	-0.313*** (0.01)		-0.182*** (0.01)	
GenderWVS		0.061* (0.03)		0.009 (0.03)
_cons	-0.647*** (0.02)	-1.301*** (0.05)	-0.09 (0.01)	-0.388***(0.04)

Dependent variables: Entrepreneurial intention and Perception (individual-level variable)

The table presents beta coefficients and standard errors are given in brackets

*p<0.10, **p<0.05, ***p<0.01

Thus, entrepreneurial intentions and opportunity perception are influenced by gender based on the GEM and the WVS data.

First a logistic regression with standard clustered errors will be conducted then followed by a logistic regression with random intercept model. The following models examine the effect the independent and control variables upon entrepreneurial intention.

Table 3. Entrepreneurial Intention

Dependent variable: Entrepreneurial intention

	Entrepreneurial Intention	Model 1	Model 3	Model 5	Model 7	Entrepreneurial Intention re	Model 1 re	Model 3 re	Model 5 re	Model 7 re
Control Variables										
Gender	-0.05* (0.03)		-0.06* (0.03)			-0.15*** (0.03)		-0.01*** (0.03)		
GenderWVS	0.07** (0.03)		0.07** (0.03)			0.06* (0.03)		0.07* (0.03)		
Suskill	0.84*** (0.03)		0.83*** (0.03)		0.84*** (0.03)	0.78*** (0.03)		0.78*** (0.03)		0.80*** (0.03)
Frfail	-0.11*** (0.03)		-0.11*** (0.03)		-0.12*** (0.03)	-0.08** (0.03)		-0.08** (0.03)		-0.09** (0.03)
Knowent	0.61*** (0.03)		0.60*** (0.03)		0.60*** (0.03)	0.57*** (0.03)		0.57*** (0.03)		0.57*** (0.03)
Education	0.0001*** (0.00003)		0.0001*** (0.00003)		0.0001*** (0.00003)	0.00006 (0.00004)		0.00006 (0.00004)		0.00006 (0.00004)
EducationWVS	0.007 (0.007)		0.01* (0.007)		0.01* (0.007)	0.008 (0.008)		0.006 (0.008)		0.004 (0.008)
Independent Variables										
Family		-0.04 (0.05)	-0.06 (0.04)	0.03 (0.07)			-0.01 (0.05)	-0.02 (0.05)	0.13* (0.08)	
Friends		0.18*** (0.02)	0.18*** (0.02)	0.16*** (0.04)			-0.003 (0.02)	0.0007 (0.02)	-0.02 (0.04)	
OrgMem		0.02 (0.03)	0.02 (0.03)	0.07 (0.06)			0.04 (0.03)	0.04 (0.03)	0.07 (0.07)	
Interaction Variables										
Fam_Gen				-0.04 (0.03)	-0.06*** (0.01)				-0.07** (0.03)	-0.02 (0.01)
Frd_Gen				0.007 (0.01)	0.05*** (0.008)				0.01 (0.01)	0.001 (0.008)
Org_Gen				-0.02 (0.02)	0.0005 (0.01)				-0.01 (0.02)	0.01 (0.01)
_cons	-2.06*** (0.09)	-1.47*** (0.02)	-2.37*** (0.09)	-1.45*** (0.06)	-2.16*** (0.07)	-1.81*** (0.23)	-1.17 (0.22)	-1.79*** (0.23)	-1.15*** (0.22)	-1.88*** (0.21)
Log of variance						-0.35 (0.33)	-0.20 (0.33)	-0.35 (0.34)	-0.19 (0.33)	-0.36 (0.33)
Standard deviation						0.84 (0.14)	0.90 (0.15)	0.84 (0.14)	0.90 (0.15)	0.83 (0.14)
rho						0.17 (0.04)	0.20 (0.05)	0.17 (0.04)	0.20 (0.05)	0.17 (0.04)

The table presents beta coefficients and standard errors are given in brackets

*p<0.10, **p<0.05, ***p<0.01

Before beginning the main logistic regressions, the effect of the control variables upon the dependent variables is examined, showing that most of the control variables are significant, except for EducationWVS.

The first model is entrepreneurial orientation on the social embeddedness variables of family, friends and organizational membership support. The results show that the model 1 is significant and positive, and that friends is the only significant variable within the model, thus hypothesis 2a is supported. Therefore, hypotheses 1a and 3a examining support from family and membership within a professional organization are not supported.

The third model assesses the impact of gender by including it in the model with the other independent variables and control variables. The model is significant, and all the control and gender variables are significant. Thus, gender is significant as a stand-alone variable in a regression for entrepreneurial intention and when it included with the other independent and control variables.

The fifth model uses interaction variables that are comprised of the gender variables and the social embeddedness variables of friends, family and professional organization membership. Also the model includes the original independent variables of family, friends and organizational membership support. The model is significant, however, none of the interaction variables are significant. Thus, for hypothesis 4a female gender and familial support, this hypothesis 4a is not supported. Similarly, hypothesis 4c and 4e are not supported as the interaction variables for friends and organizational support are not significant.

Thereafter, a full logistics regression model is utilized in model 7 that includes interaction and control variables and their impact on the dependent variables. The model is significant, the control and one interaction variables are significant. Thus, female gender plays a negative moderating role

in influencing entrepreneurial intention. However, the sign of the coefficient of female gender and familial support is negative, it does not positively moderate entrepreneurial intention.

Finally, the logistic random effects regressions are performed to determine the variability that occurs due to the country effect. Overall model one is not significant, and no independent variables are significant. Thus, hypotheses 1a, 2a and 3a determining the impact of social embeddedness on entrepreneurial intentions are not supported. However, the panel level variance is different from zero at 0.20.

The third model assesses the impact of gender by including it in the model with the other control and independent variables. The model is significant and only the control variables are significant, except for the education variables. Thus, gender is significant as a stand-alone variable in a regression for entrepreneurial intention and when it included with the other independent variables. Similarly, the panel level variance is different from zero at 0.17.

The fifth model includes the interaction variables assessing family, friends and organizational support moderated by gender. Also, the model includes the original independent variables of family, friends and organizational membership support. The regression shows that one interaction is significant, the interaction variable of family and gender being significant, however, the sign of the coefficient is negative. Thus, hypothesis 4a is not supported. Hypotheses 4c and 4e are not supported. The main effects show that only one of the original independent variables is significant, family is significant, showing that family impacts intentions.

Thereafter, a full random effects logistics regression model is utilized in model 7 that includes interaction and control variables and their impact on the dependent variables. The model is significant, and the interaction variables are not significant, some of the control variables are significant. Thus, influencing entrepreneurial intention. The variables perceived abilities (suskill), fear of failure (frfail), and knowing an entrepreneur (knowent) are significant in influencing intentions.

Next, our models examining the impact upon entrepreneurial opportunity perception show the following:

Table 4. Entrepreneurial Opportunity Perception

	Entrepreneurial Opportunity Perception	Model 2	Model 4	Model 6	Model 8	Entrepreneurial Opportunity Perception	Model 2 re	Model 4 re	Model 6 re	Model 8 re
Control Variables										
Gender	-0.02 (0.03)		-0.02 (0.02)			-0.09*** (0.03)		-0.09*** (0.03)		
GenderWVS	0.017 (0.03)		0.01 (0.03)			-0.003 (0.03)		-0.003 (0.03)		
Suskill	0.73*** (0.03)		0.73*** (0.03)		0.73*** (0.03)	0.64*** (0.03)		0.65*** (0.03)		0.66*** (0.03)
Frfail	-0.23*** (0.03)		-0.24*** (0.03)		-0.24*** (0.03)	-0.21*** (0.03)		-0.21*** (0.03)		-0.22*** (0.03)
Knowent	0.92*** (0.03)		0.91*** (0.03)		0.92*** (0.03)	0.78*** (0.03)		0.78*** (0.03)		0.79*** (0.03)
Education	0.0001*** (0.00003)		0.0001*** (0.00003)		0.0001*** (0.00003)	0.00007** (0.00003)		0.00007** (0.00003)		0.00007** (0.00003)
EducationWVS	0.02*** (0.006)		0.02*** (0.006)		0.02*** (0.006)	0.003 (0.006)		0.003 (0.007)		0.002 (0.007)
Independent Variables										
Family		0.06* (0.03)	0.06 (0.04)	0.11* (0.06)			0.02 (0.04)	0.01 (0.04)	0.11* (0.06)	
Friends		0.07*** (0.01)	0.09*** (0.01)	0.10*** (0.03)			0.002 (0.02)	0.004 (0.02)	0.03 (0.04)	
OrgMem		-0.02 (0.02)	-0.03 (0.02)	-0.01 (0.05)			0.004 (0.02)	0.0009 (0.03)	0.004 (0.06)	
Interaction Variables										
Fam_Gen				-0.02 (0.01)	-0.007 (0.01)				-0.04* (0.02)	-0.01 (0.01)
Frd_Gen				0.01 (0.01)	0.02** (0.007)				-0.01 (0.01)	-0.003 (0.007)
Org_Gen				-0.005 (0.02)	-0.01 (0.01)				-0.001 (0.02)	-0.001 (0.011)
_cons		-0.57*** (0.05)	-1.44*** (0.10)	-0.56*** (0.05)	-1.29*** (0.06)	-0.67*** (0.19)	-0.20 (0.20)	-0.70*** (0.20)	-0.18 (0.20)	-0.77*** (0.18)
Log of variance						-0.69 (0.33)	-0.32 (0.34)	-0.69 (0.34)	-0.32 (0.34)	-0.70 (0.34)
Standard deviation						0.70 (0.12)	0.85 (0.14)	0.71 (0.12)	0.85 (0.14)	0.70 (0.12)
rho						0.13 (0.04)	0.18 (0.05)	0.13 (0.04)	0.18 (0.05)	0.13 (0.04)

Dependent variable: Entrepreneurial opportunity perception

The table presents beta coefficients and standard errors are given in brackets

*p<0.10, **p<0.05, ***p<0.01

Before beginning the main logistic regressions, the effect of the control variables upon the dependent variables is examined, showing that most of the control variables are significant, except for both gender variables.

The second model is significant, only two hypotheses are supported 1b and 2b are significant in that support from family and friends impacts entrepreneurial opportunity perceptions.

The fourth model assesses the impact of gender and control variables along with the independent variables. The model is significant and one of the independent variables and control variables are significant except for gender. Thus, female gender is significant when assessed separately and in conjunction with control and independent variables.

The sixth model examining the interaction effect, it also includes the original independent variables of family, friends and organizational membership support. The model is significant; however, no interaction variables are significant, thus hypotheses 4b, 4d and 4f are not supported. The original independent variables are significant both familial support and friends are significant in affecting opportunity perceptions.

Thereafter, a full logistics regression model is utilized in model 8 that includes interaction and control variables and their impact on the dependent variables. The control and one interaction variables are significant. Thereby showing that female gender plays a positive moderating role for friend support in influencing entrepreneurial opportunity perception.

Contrastingly, the logistic random effects regressions shows different results for opportunity perception. overall model 1 is not significant, and no independent variables are significant. Thus, hypotheses 1a, 2a and 3a determining the impact of social embeddedness on entrepreneurial

opportunity perceptions are not supported. However, the panel level variance is different from zero at 0.13.

When examining the results all the independent variables are not significant, however, the control of Gender (GEM), perceived capability, fear of failure, knowing an entrepreneur, and education are significant. The panel variance test shows that rho is not zero and that it is 0.18.

The sixth model is significant, one of the interaction variables family and gender is significant. However, the sign of the coefficient shows that a negative moderating relationship exists hypothesis 4b is not supported. Also, hypotheses 4d and 4f are not supported. The rho for the total proportion of variance explained by the panel variance is 0.18.

The eighth model includes interaction and control variables to determine their impact on the dependent variables. The model is significant, the interaction variables are not significant. Some of the control variables except for educationWVS are significant. Thereby showing that perceived abilities (suskill), fear of failure (frfail), knowing an entrepreneur (knowent) and education (GEM data) influence entrepreneurial opportunity perception.

Lastly, variance inflation factors (appendix 3) were tested for the regressions showing that all the variables were under 10 with 1/VIF greater than 0.1. These values are within the normal range in examining how much variance is increased due to collinearity.

6. Discussion

The results from this research enrich our understanding of the significant of social networks in impacting entrepreneurial intentions and perceptions. By focusing specifically on the interaction between gender and social network variables including family, friends and organizational membership support. Moreover, this is one of the first studies to examine across countries whether relationships exist between social networks and female entrepreneurial intentions and perceptions. By using over two hundred thousand observations from 37 countries to determine the relationship. Thereby showing that the data set offers enough observations as a base for conducting future research.

Gender has been shown to be a significant variable throughout the entrepreneurship process as evidenced by many researchers (Blake, 2006, Minniti & Nardone, 2007, DeTienne & Chandler, 2007; Loscocco, Monnat, Moore, & Lauber, 2009). Moreover, that it creates obstacles for female entrepreneurs (Blake, 2006, Loscocco, Monnat, Moore, & Lauber, 2009). These assertions are supported by the results of the research conducted, in that a negative relationship exists between female gender and entrepreneurial intentions and perceptions. Thus, providing a basis to examine the interaction between gender and entrepreneurship as affected by social network aspects. Also supporting research (Arenius & Minniti 2005, Minniti and Langowitz, 2007) shows that gender and perceptual variables such as self-efficacy, knowing entrepreneurs and fear of failure affect entrepreneurial opportunity perception. Developments in entrepreneurship research solidify the assertion that socio-economic variables such as education, income and prior work experience were not significant in showing differences (Stevenson, 1976; Davidsson & Honig, 2003; Minniti & Nardone, 2007).

One of the main findings of the research is that friends play a significant role in impacting entrepreneurial intentions. Researchers (Larson & Starr, 1993, Anderson & Miller 2003) stated that friends play a significant role during the early process of entrepreneurship for acquiring resources and for emotional support. Additionally, that friends moderated gender is significant in impacting female entrepreneurial intentions positively. One of the gaps within the research was in showing that gender was not included as a moderating variable to determining how it affects the earlier stages of entrepreneurship, particularly in recognizing and acting upon opportunities. Therefore, the significance of the one of the attributes of social networks supports the research (Bruderl & Preisendorfer, 1998; Renzulli, Aldrich and Moody, 2000) in that social networks of women are comprised of high levels of kin and close friends. On the other hand, gender was not a significant in moderating the relationship between family and intentions or perceptions. Moreover, when the interaction variable of family and gender was significant it showed a negative relationship in that as support from family does not impact entrepreneurial intentions for women. This is a surprising result that contradicts the research discussed above that states that women benefit from close kin ties. Prior research states that gender effects are significant in influencing entrepreneurship, men and women do not utilize networks in a similar manner, nor are they similar in composition, women's networks have more kin ties (Bruderl & Preisendorfer, 1998; Greve & Salaff, 2003; Minniti & Nardone, 2007). This result could occur as a result of familial ties being strong and dense ties in that the network of one's family is likely to share similar connections. Thus, one's close family ties are more likely to introduce connections that an entrepreneur is already familiar with, reducing diversity in ties. As entrepreneurship thrives upon having access to the right information at the right time and being able to utilize the resources available, familial ties may not offer access to new information. However, familial ties provide emotional and moral

support that are significant in impacting entrepreneurship growth and stability. The research shows that familial support is significant for female entrepreneurs throughout all stages of entrepreneurship (Greve and Salaff, 2003), particularly in terms of kin within networks, women's networks are comprised of more kin (Renzulli, Aldrich and Moody, 2000). The networks that provide ease of access for women are their familial networks as support from spouses and parents are more readily available without restrictions (Aldrich & Zimmer, 1986; Greve and Salaff, 2003). Moreover, the reasoning as to why female entrepreneurs rely heavily on their kin ties is that these networks are often easily accessible, without restrictions (Aldrich & Zimmer, 1986; Greve and Salaff, 2003).

Contrastingly, organizational membership support is not supported in any of the regressions in impacting entrepreneurial intentions or perceptions. This result serves to show the strength of informal ties in influencing entrepreneurial intentions and opportunity perceptions. Thereby contradicting prior research that showed that organizational membership support is a significant factor in influencing entrepreneurship (Aldrich & Zimmer, 1986; Davidsson & Honig, 2003). Moreover, research shows that in the beginning stages entrepreneurs focus on their strong ties to flesh out their ideas, thereafter they carefully select their contacts and limit them to only relevant ones (Larson & Starr, 1993; Greve & Salaff, 2003). As intentions and perceptions are formed during the early stages of entrepreneurship these results are supported by the research. Although, earlier research demonstrated the importance of informal ties, they did not examine whether it directly impacted intention and perceptions. These prior studies examined survival rates, and early stages of entrepreneurship during the motivation phase (Bruderl & Preisendorfer, 1998; Davidsson & Honig, 2003). Thus, informal networks particularly during the early stages of entrepreneurship are significant as networks provide emotional support and aid in fostering greater self-efficacy

(Aldrich & Zimmer, 1986; Bruderl & Preisendorfer, 1998; Minniti and Langowitz, 2007; Shinnar et al 2012). The family and friends of entrepreneurs provide this support that can strengthen self-efficacy levels. This can increase opportunity perception as possessing adequate skills is an attribute associated with perceived capability and it is measured by the control variables in this research; perceived capability influences opportunity perceptions.

Before intentions and perceptions can be formed, entrepreneurs need to be motivated, often this form of emotional support is found within close ties as the intensity and frequency within those relationship is greater when compared to weaker ties (Burt, 1997). Perhaps it is because weak ties in the form of organizational membership provide access to individuals that are not multi-faceted. If an entrepreneur knows an individual through an incubator program or a startup community outreach program they likely do not hold multiple anchors for that connection, close ties have multiple anchors as they could be met through family, school environment, workplace or all of those in combination. Although those weak ties over time and depending on the entrepreneur's investment within that relationship could be further refined and embedded as the dynamics change within relationships adapting it into a more dynamic tie (Larson & Starr, 1993).

Lastly, the random intercepts model was chosen to compare the results of the regression as the data contained individual level observations under each country level with multiple observations per country per year, thus fixed effects could not be analyzed. This was due to the changing nature of the data in which many observations were held per year for the same country. Regular panel data has one observation per year per country. The variance obtained showed that the panel level variance determined by identifying country as the group that independence of values cannot be assumed because of the inter-correlation. The country level variance is significant in contributing to the total variance of our regressions. This is a significant result that provides support for further

studies to examine country level effects and their impact upon female entrepreneurship. The results from the research show that country level factors exist, although further research needs to be conducted to determine what those factors consist of, currently the literature (Stephan & Uhlaner, 2010, De Clercq, Lim & Oh, 2013) states that supportive cultures increase perceptions and intentions. Furthermore, aggregate amounts of the importance of social networks at the country level can determine the level of orientation towards cultural supportiveness in promoting entrepreneurship.

Overall, the results showed that friends and family play a crucial role in impacting entrepreneurial intentions and perceptions, whereas organizational membership support is not significant. However, this could be due to the low responses for 'active participant' in an organization, as those responses were significantly lower when the frequency of the variable was observed (Appendix 2: Statistical frequency of variables). If a larger amount of active participant responses for gauging organizational membership were collected, then it may change the statistical significance. Also, this study did not specify different types of organizational membership, future studies could yield different results in gauging its importance as prior research has established its significance.

These results have direct implications for female entrepreneurs, particularly, in terms of financing, venture capital access can facilitate the entrepreneurial process. As the major contribution of this study was in determining how gender moderates the relationship between social embeddedness and entrepreneurial intentions, the results demonstrated that effect. When the interaction terms using gender as the moderating variable along with friends, family and organizational membership were included only support from friends was significant under both the standard and random effects regression. Thereby demonstrating that a gender effect is substantial in determining levels of intention and perception when friends provide support. Moreover, showing areas in which

female entrepreneurship needs more support. These social embeddedness dimensions provide access to valuable knowledge and resources that determine the success of early stage entrepreneurship formation. Thus, access to these networks needs to become more inclusive and not be limited based on gender or socio-economic aspects. The main reason for restrictions are because organizational membership participants are chosen for their similarities, these networks exhibit high homophily. By making them more inclusive it will allow for greater diversity and this will increase the innovativeness of countries. As larger firms can be more bureaucratic and slow in adopting changes, entrepreneurial ventures are nimbler and thus more innovative as result. There is a wealth of untapped resources in the form of potential female entrepreneurs that is being under-utilized. This is to the detriment of many countries as female entrepreneurship rates are increasing globally, if these impediments are removed these rates could increase at a more rapid rate.

Conclusion

The aim of this research was to demonstrate that social embeddedness factors play an important role within the entrepreneurial process particularly in forming intentions and perceptions. Entrepreneurship is a process that does not occur in isolation, it occurs as a result of interplay between many factors, thus environmental contexts in which the entrepreneur is embedded within are of utmost importance. The results showed that social embeddedness is significant factor in determining entrepreneurial intentions and opportunity perceptions. Particularly when the interaction variable that combined gender with each of the social embeddedness variables was utilized in the regressions. Gender was significant in moderating friends in impacting intentions

and perceptions. These results reinforced the research conducted that showed that female entrepreneurs utilize their strong ties more during the entrepreneurial process. Similarly, that family negatively moderates female gender in influencing intentions and perceptions as most of the research showed that it positively impacted entrepreneurship. A surprising result was that professional organizational membership was not a significant factor in determining intentions and perceptions. This outcome is significant because organizational membership support can be crucial in providing access to relevant resources. Although, these organizations do not provide inclusive spaces for female entrepreneurs, they can foster entrepreneurship rates. Additionally, the random intercepts model showed that panel level variance at the country level accounted for a proportion of the total variance.

The main limitations for the study occurred during data collection in that two data from the Global Entrepreneurship Monitor (GEM) and the World Value Survey's (WVS) information were merged together. Thereby, requiring that a new database be created that combined the disparate information, the two separate databases collected data in a different manner, the GEM data was collected yearly, whereas the WVS data was collected in waves every five years. However, the new database the data was matched to the years available in both databases. Thus, the statistical program used accounted for the differences and only used data and reduced the larger sample from GEM to match the smaller sample from WVS. Moreover, it serves as one of the few studies that directly examines impacts of networks on willingness to start new ventures and the ability to perceive opportunities. Therefore, future databases that combine information about support networks using indicators including: professional membership association, conference and trade show participations, venture capital exhibits and forums, accelerator and incubator program

participation, networking conferences, spousal support, familial support, university research and alumni associations could serve to determine social network embeddedness.

Further extensions of research could examine personal networks of female entrepreneurs to examine whether formal or informal ties provided an impact on entrepreneurial intentions and perceptions. Also, by comparing different stages of entrepreneurship and determining the impact of formal and informal ties on intentions. Additionally, the strength of a tie, whether it is a close contact or a weak tie such as an acquaintance is significant. Another important factor is size of networks and the composition, further studies should examine which variables impact female entrepreneurial intentions more significantly size or composition of one's network in influencing opportunity perception and intentions?

Country specific attributes that can foster entrepreneurial intentions and perceptions should be explored further as the random effects regression showed that some of the variation could be explained by the country level variable. This research was focused on the individual level to determine the significance of gender, therefore matching these gender attributes with country level attributes such as trust, national level or governmental support organizations, legislation or governmental programs, involvement of research institutions and universities and government subsidies. Also, a study examining gender and cultural attributes in terms of the GLOBE dimensions to see if there is an impact on female entrepreneurship based on the country specific attribute of masculinity and femininity.

Another consideration is to determine what networking activities entrepreneurs engage in and what level of strength and intensity in ties they produce and whether that impacts opportunity perceptions. Moreover, decision-making and how it is influenced by social networks is an area that is not fully developed. How do entrepreneurs use their social networks to make decisions based on

the different stages, how influential are the different actors within their respective networks, particularly gender level differences?

Therefore, networks in entrepreneurship is an evolving area of research that has many avenues that are yet to be explored. Particularly within female entrepreneurship as most of the research focused on gender as an independent variable but not a moderating variable as this research has shown to see the specific impact on all the independent variables. Gender has been shown to be a significant factor throughout entrepreneurial research, however, few studies make it a focal point. Although many challenges exist in terms of data collection and in mapping entrepreneurial networks, many opportunities exist in contributing to theoretical frameworks and creating linkages across interdisciplinary fields. By researching social networks of entrepreneurs more deeply new discoveries can be made that can have greater impact upon national and global female entrepreneurship rates. Although female entrepreneurship rates are increasing, they have not yet reached a significant rate that is comparable to that of male entrepreneurship rates. Governments should play a role in addressing this gap that occurs, by delving into the social embeddedness aspects they could provide solutions that would increase entrepreneurship. Thus, if more female entrepreneurship research increases, governments will have more information available about the specific needs and obstacles that these entrepreneurs encounter throughout their entrepreneurial endeavours.

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Appendices

Appendix 1. Literature Review Matrix

	Authors	Methodology	Findings	Contribution
Entrepreneurial Intention	Azjen (1991)	Qualitative- Grounded Theory	The theory of planned behaviour framework is based upon evaluation of the behaviour of attitudes, social pressure and the perceived abilities of an entrepreneur	An entrepreneur's cognitive capabilities, perceived abilities and social context impact intentions
	Boyd & Vozikis (1994)	Qualitative- Grounded Theory	Expanding upon Bird's model of intention that self-efficacy influences intentions and behaviours	Self-efficacy must be included in intention models
Entrepreneurial Opportunity Perception	Vaghely & Julien (2010)	Mixed Methods- Model of human information processing	The ability to create and share information to facilitate innovation is characterized by justifying beliefs through receiving information	Success in entrepreneurship is influenced by the ability to process information
	Edelman & Yli-Renko (2010)	Quantitative- Structural Equation Modelling	Intentions and venture creation are influenced by an entrepreneur's view of entrepreneurship in terms of discovery or creation. Discovery focuses on environmental scans, whereas creation is contingent upon the entrepreneur	Entrepreneurship is impacted by both the entrepreneur's perceptions and their environmental conditions

	Authors	Methodology	Findings	Contribution
Social Embeddedness - Opportunity Perception	Birley (1985)	Qualitative – Grounded Theory	Informal networks were used more frequently than formal networks	Informal networks impacted perceptions because they acted as sources of advice and motivation
	Arenius & De Clercq's (2005)	Quantitative – Logistic regression	The type of networks and how entrepreneurs are exposed to them based on human capital elements are significant	Geographical proximity can impact network access and human capital factors affect opportunity recognition
	Jack & Anderson (2002)	Qualitative – Grounded Theory	By being embedded in networks, entrepreneurs were given access to intimate knowledge, sources of advice, information and support	Social embeddedness provides entrepreneurs with support, access to knowledge, resources and relevant contacts
	Ozgen and Baron (2007)	Quantitative – Structural Equation Modelling	Three sources of information: mentors, professional forums and informal industry networks affected opportunity recognition positively. Mentors and professional forums improve schema strength and industry networks affect self-efficacy	Sources of information impact opportunity recognition by fostering schema strength (mental frameworks) and self-efficacy

	Authors	Methodology	Findings	Contribution
Social Embeddedness - Intentions	Bird (1988)	Qualitative – Grounded Theory	An entrepreneur`s direct attention, experience actions impact the direction of the business. Business survival, development, growth and change are influenced by intention	The social context of an entrepreneur significantly impacts their willingness to start a business, particularly the readiness to send and receive information is embedded within networks
	Krueger & Brazeal (1994)	Qualitative – Grounded Theory	Actors within an entrepreneur`s environment influence intentions, when government and community members are supportive of entrepreneurs, entrepreneurship increases	The social context in terms of the individuals within the network positively affect intentions through their actions and behaviours
	De Carolis and Saporito, (2006)	Qualitative – Grounded Theory	The social capital embedded within networks can affect cognitive processes and behaviour. Stronger ties increase cognitive biases. The norms within networks can affect self-efficacy and decision-making	An entrepreneur`s behaviour and intentions are interlinked and shaped by network dynamics
	Quan (2012)	Quantitative – Multinomial logit model	Entrepreneurial intentions are comprised of two levels: impulsive and deliberate intentions. Social networks impact deliberate intention as resources access increases through joining associations and influential actors	By differentiating between the two levels of intentions it allows for more refined assessment

	Authors	Methodology	Findings	Contribution
Social Capital	Warde & Tampubolon (2002)	Qualitative- Grounded Theory	Analyzing socio-economic data, men had higher engagement in activities than women. The type of friendship has different qualities within social capital, it has more of an effect on some activities and less on others. friendship generates forms of identification, emotional solidarity and fosters a sense of common identity	The type of network and the type of relationship provide different benefits to individuals
	Davidsson & Honig (2003)	Quantitative –OLS and Logistic Regression	Human capital elements such as formal education and previous start-up experience were significant. Social capital variables such as strong ties that had business experience and encouragement from family and friends.	Human and social capital factors are interlinked in impacting discovery and exploitation of opportunities
	Bosma, Van Praag, Thurik, & De Wit (2004)	Quantitative –Tobit Regression	Human capital in terms of prior experience affected profits and sales growth. Social capital through personal and business relationships affected performance	A founder's investment in social and human capital can affect their financial performance
	Stam & Elfring (2008)	Quantitative –Hierarchical Regression Analysis	A firm's ties has positive and negative performance effects on a firm's orientation. High centrality and extensive bridging ties influence orientation and performance	A firm's intra and extra industry network ties can impact its entrepreneurial orientation and performance
	Ostgaard & Birley (1994)	Mixed Methods- Cluster Analysis	Entrepreneur's had networks that matched their business strategy. The entrepreneurial firms that had broad range of products and large distribution channels spent more time networking	The entrepreneur's contacts and the amount of time that they devote to networking is has implications for the firm's competitive strategy

	Authors	Methodology	Findings	Contribution
Country Level Social Embeddedness	Dodd & Patra (2002)	Mixed Methods – Network analysis of ties	They studied the nature of Greek entrepreneurial networking and compared it to other nations. Greeks utilize strong ties such as family and friends, these ties are tightly knit together; these strong ties provide them with access to secondary networks	Differences exist in the composition of entrepreneurs networks across countries and in how they utilize networks
	Kwon & Arenius (2010)	Quantitative – Probit, 2SLS and ordered logistic regression	Individuals that perceive opportunities share common personal attributes distinct from others. Women were less likely to perceive entrepreneurial opportunities as women have lower social capital; also they rely heavily on strong ties	The social context of an entrepreneur, particularly social capital at the country level impacts entrepreneurship and that entrepreneurial activities are jointly determined by individual and contextual level factors
	Stephan & Uhlaner (2010)	Quantitative – Hierarchical Regression Analysis	Performance based cultures do not increase the social desirability of entrepreneurship as a viable career path. In contrast socially supportive cultures that exhibit friendliness and cooperativeness have a positive effect on national entrepreneurship	Dimensions of culture in terms of supportiveness can impact entrepreneurship levels
	De Clercq, Lim & Oh, (2013)	Qualitative – Cross-level interaction effects	The types of capital in conjunction with country level institutions affect entrepreneurship. They work together in impacting access to entrepreneurial role models and in turn access to external resources	Different types of capital such as financial, human and social capital impact entrepreneurship

	Authors	Methodology	Findings	Contribution
Networks	Granovetter (1973)	Qualitative- Grounded Theory	The strength of a tie is determined by: the amount of time, emotional intensity, intimacy and reciprocal services derived from it. Strong ties provide access to redundant information as the likelihood of ties being interconnected is high. Conversely, weak ties travel a greater social distance and increase access to dissimilar ties	The type of tie that an entrepreneur possesses impacts entrepreneurship. Weak ties in the form of acquaintances, colleagues provide greater value because of the diversity of information available because of the access to non-redundant ties
	Aldrich & Zimmer (1986)	Book Chapter- Grounded Theory	Entrepreneurship is embedded within social relationships. It discussed the characteristics of a network and emphasized the importance of a diverse network of ties.	Personality traits are not the only factors that foster entrepreneurial success. Entrepreneurship requires key linkages throughout the process. These linkages impact access to resources and opportunity exploitation.
	Larson & Starr (1993)	Qualitative- Grounded Theory	A network model of organization formation by examining the connection between essential relationships during the creation process. The first stage focuses on diverse set of partners. The second stage adds a social aspect to foster interdependence. The last stage specific business functions are added to the established socio-economic relationship	Entrepreneurship occurs through three networks: social, business and strategic networks.

	Authors	Methodology	Findings	Contribution
Networks – Cont'd	Brüderl & Preisendörfer (1998)	Quantitative –OLS and Probit Regression	Differences exist in how men and women use networks. Also, strong ties were useful resources for business formation. Emotional support from spouses increased success.	Social networks increase the probability of survival and growth of new businesses
	Burt (2000)	Qualitative – Grounded Theory	The value derived from social capital is contingent upon the structure of the network. Network density can restrict access to new knowledge. Also, occupying a bridging position that spans networks increases opportunity exploitation capability	Network structure plays an important role in terms of propensity for innovation and diffusion of information
	Renzulli, Aldrich, & Moody (2000)	Quantitative- Logistic Regression	Entrepreneurs with diverse networks and lower percentage of kin are more likely to start businesses	Network composition in terms of tie diversity significantly impacts new venture formation
	Jack (2005)	Qualitative – Grounded Theory	Entrepreneurial strong and weak ties were examined thereby finding that strong ties were used more frequently in obtaining information and drawing resources	Strong ties were activated more often than weak ties during early business activity

Appendix 2: Statistical Variables Frequency Tables

Gender Variables from the Global Entrepreneurship Monitor and the World Values Survey

Male = 1

Female = 2

Gender GEM	Frequency	Percent
1	116756	52.30
2	106477	47.70
Total	223233	100

Gender WVS	Frequency	Percent
1	10782	49.92
2	10816	50.08
Total	21598	100

Dependent variables

Futsup = Entrepreneurial Intention

Opp= Opportunity Perception

Futsup	Frequency	Percent
0	168419	74.95
1	56280	25.05
Total	224699	100

Opp	Frequency	Percent
0	127607	56.73
1	97350	43.27
Total	224699	100

Independent variables

Scale: 1 = very important, 2= rather important, 3= not very important, 4= not important at all

Friends	Frequency	Percent
1	10184	47.15
2	8564	39.65
3	2386	11.05
4	464	2.15
Total	21598	100

Family	Frequency	Percent
1	19781	91.59
2	1558	7.21
3	198	0.92
4	61	0.28
Total	21598	100

Scale: 0= doesn't belong, 1=inactive member, 2= active member

OrgMem	Frequency	Percent
0	18022	83.44
1	2325	10.76
2	1251	5.79
Total	21598	100

Countries List

Countries	Frequency	Percent
Algeria	6348	2.82
Argentina	4103	1.82
Australia	1283	0.70
Belgium	3672	1.63
Brazil	7878	3.50
Canada	2213	0.98
Chile	12830	5.70
Colombia	16060	7.14
Czech Republic	5425	2.33
Finland	3575	1.59
France	5309	2.36
Germany	11531	5.12
Greece	4573	2.03
Guatemala	2203	0.98
India	4562	2.03
Indonesia	4463	1.98
Israel	2689	1.19
Italy	3015	1.34
Japan	5177	2.30
Malaysia	5006	2.22
Mexico	5103	2.27
Netherlands	6612	2.94
Nigeria	4595	2.04
Peru	3979	1.77
Philippines	1697	0.75
Poland	4113	1.83
Portugal	3647	1.62
Russia	8397	3.73
Singapore	4385	1.95
South Africa	7377	3.28
Sweden	4289	1.91
Switzerland	4207	1.87
Taiwan	5161	2.29
Turkey	24911	11.07
United Arab Emirates	2628	1.17
United Kingdom	9758	4.33
United States	12134	5.39
Total	225028	100

Appendix 3: Sample VIFs for Logistic Regressions

Entrepreneurial Intention: Control Variables Model

Variable	VIF	1/VIF
Gender	7.11	0.14
GenderWVS	6.94	0.14
EducationWVS	5.35	0.18
Education	4.92	0.20
Suskill	1.99	0.50
Knowent	1.57	0.63
Frfail	1.56	0.64
Mean VIF	4.21	

Model 1

Variable	VIF	1/VIF
Family	4.78	0.20
Friends	4.68	0.21
OrgMem	1.16	0.86
Mean VIF	3.54	

Model 3

Variable	VIF	1/VIF
Family	8.99	0.11
Gender	8.12	0.12
GenderWVS	7.78	0.17
EducationWVS	5.87	0.17
Friends	5.61	0.17
Education	5.13	0.19
Suskill	2.03	0.49
Knowent	1.58	0.63
Frfail	1.57	0.63
OrgMem	1.22	0.82
Mean VIF	4.79	

Model 7

Variable	VIF	1/VIF
Fam_Gen	6.27	0.15
Frd_Gen	4.87	0.20
EducationWVS	4.47	0.22
Education	4.23	0.23
Suskill	1.95	0.51
Knowent	1.56	0.64
Frfail	1.52	0.65
Org_Gen	1.19	0.83
Mean VIF	4.79	

Entrepreneurial Opportunity Perception

Control Variables

Variable	VIF	1/VIF
Gender	7.12	0.14
GenderWVS	6.94	0.14
EducationWVS	5.36	0.18
Education	4.94	0.20
Suskill	2.00	0.49
Knowent	1.58	0.63
Frfail	1.56	0.64
Mean VIF	4.21	

Model 2

Variable	VIF	1/VIF
Family	4.78	0.20
Friends	4.68	0.21
OrgMem	1.16	0.86
Mean VIF	3.54	

Model 6

Variable	VIF	1/VIF
Family	8.99	0.11
Gender	8.12	0.12
GenderWVS	7.79	0.12
EducationWVS	5.88	0.16
Friends	5.61	0.17
Education	5.16	0.19
Suskill	2.04	0.48
Knowent	1.59	0.63
Frfail	1.57	0.63
OrgMem	1.22	0.82
Mean VIF	3.54	

Model 8

Variable	VIF	1/VIF
Fam_Gen	6.27	0.15
Frd_Gen	4.87	0.20
EducationWVS	4.48	0.22
Education	4.25	0.23
Suskill	1.97	0.23
Knowent	1.57	0.63
Frfail	1.52	0.65
Org_Gen	1.19	0.83
Mean VIF	3.26	

