Gender Role Identity and Entrepreneurial Intentions: A study with University students

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Abstract

The aim of this study is to investigate the association of gender role identity with the precursors (antecedents) of entrepreneurial intentions by empirically validating the relationship between gender role identity and entrepreneurial intentions. The theoretical frameworks used in the study are the Theory of Planned Behaviour (TPB) and Social Role Theory (SRT) (Ajzen, 1991; Eagly,1987). The study investigates the mediating role of the constructs of TPB- attitude towards behavior (ATB), perceived behavioral control (PBC) and subjective social norms (SSN) in the relationship between gender role identity (GRI) and entrepreneurial intentions (EI). A survey was conducted with 149 undergraduate and graduate students of all departments from the Memorial University of Newfoundland located in St John's city in Newfoundland and Labrador province, Canada. Results suggest that gender role identity is indirectly associated with entrepreneurial intentions through subjective social norms and attitude towards behavior and also through subjective social norms and perceived behavioral control. Findings also show that higher the level of femininity, lower are the subjective social norms. This study makes a significant contribution by investigating a conceptual model of gender role identity and entrepreneurial intentions. Limitations, future directions, and conclusion have been outlined.

Keywords- Entrepreneurship; Entrepreneurial intentions; Gender role stereotypes; Gender role identity; Agency; Communion; Masculinity; Femininity; Theory of planned behavior; Social role theory

General Summary

The aim of this study is to investigate how an individual's identification of oneself in terms of masculinity and femininity can be associated with that person's intentions towards setting up a new business venture. A survey was conducted with 149 students at Memorial University of Newfoundland located in St John's, Newfoundland and Labrador province, Canada. Results of the study show that societal pressures and normative beliefs play a key role in the relationship between one's masculine or feminine identity and one's intentions towards setting up a new business. Higher level of identification with femininity was associated with development of perceptions of less supportive societal and cultural norms related to setting up a new business venture which was then related to development of weak attitude and lower level of confidence towards setting up a new venture. This ultimately was associated with lower level of intentions of setting up a new business.

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Introduction

The primary aim of this study is to investigate how the gender role identity of an individual is associated with his or her entrepreneurial intentions. This study is important particularly in the current situation considering the economic slowdown due to the COVID-19 pandemic and the present need to rebuild the world economy because of the pandemic. Overall, there is a broad consensus that more entrepreneurial ventures are necessary for creating higher levels of growth and innovation in the economy (Oosterbeek et al., 2010). Hence understanding the factors that are associated with entrepreneurial intentions is important. Entrepreneurship can be considered as an activity which includes discovering, evaluating and exploiting numerous opportunities for introducing new services and goods (Shane & Venkataraman, 2000). It focusses on identifying an opportunity in the market, owning, designing, setting up, managing and launching a new venture and running that business venture effectively (Arshad et al., 2016). Entrepreneurship contributes to economic growth by creating both job and wealth (Petridou et al., 2009). It also has a social impact as many entrepreneurs use their resources as a vehicle for bringing social progress and change (Phipps, 2012).

Schumpeter's theory of economic development connects the role of entrepreneurs and their innovations to both prosperity and wealth (Schumpeter, 1934). Entrepreneurs look for opportunities for making profit and thus bring innovations (new combinations) and these innovations are the main endogenous causes of growth in the economic system (Oosterbeek et al., 2010). This process leads to creative destruction where the new combinations introduced by entrepreneurs destroy the current equilibrium existing in the economy and create new equilibrium (Oosterbeek et al., 2010). Thus, future economic progress, prosperity, development, and growth

of a country depends upon increasing its entrepreneurial talent (Wilson et al., 2009; Petridou et al., 2009; Amentie & Negash, 2015).

Entrepreneurship seems to have been a predominantly male oriented domain and researchers did not develop an interest in studying and understanding female entrepreneurship until the 1990s (Ng et al., 2016). Female entrepreneurship plays a significant role in the society and economy (Ferri et al., 2018). As male and female entrepreneurs usually tend to operate in different sectors, engage in different ways and processes to run their businesses and develop different types of products and services, a greater number of female entrepreneurs can increase the quality, diversity, creativity and variety of entrepreneurship in the economy (Verheul et al., 2006). Furthermore, past research has revealed that female entrepreneurship has the potential to create positive changes in women and communities which can lead to a greater level of emancipation, equality and empowerment of females (Bianco et al., 2017; Amentie & Negash, 2015). Entrepreneurship not only opens doors to providing rewarding careers to women that lead to their professional development, but it can also help in reducing the salary gap between males and females and lead to greater gender equality in the society (Ferri et al., 2018; Austin & Nauta, 2016). Also, through the process of entrepreneurship, females can develop their skills, attributes, and traits to create an educated and developed society (Hapsari & Soeditianingrum, 2018).

An important aspect of entrepreneurial behavior corresponds to the stage before the creation of a new venture (Aeeni et al., 2015). This phase refers to an individual person's intention towards setting up a new business venture (Aeeni et al., 2015). Intentions play a central role in understanding the behavior of human beings (Fenech et al., 2018). Intentionality is a state of mind where attention, actions, experience, and activities are directed towards a particular objective or goal (Zhang et al., 2014). According to a growing body of literature, intentions play a significant

role in the decision to start an entrepreneurial venture (Phipps, 2012). Entrepreneurial intentions provide a signal as to how intensely an individual is prepared and how much effort he or she is planning to give for undertaking an entrepreneurial venture and also includes the development of a state of mind which motivates the individual to reach the goal of setting up a new business venture (Obschonka et al., 2012; Fenech et al., 2018). Thus, for understanding the field of entrepreneurship, it is essential to study entrepreneurial intentions, or the intentions of engaging in entrepreneurial activities and behavior (Phipps, 2012). The theory of planned behavior (Ajzen, 1991) provides a parsimonious, highly generalizable and coherent framework that can help in both understanding and predicting different kinds of behavioral intentions which includes the behavioral intentions related to entrepreneurship (Obschonka et al., 2012).

Understanding student entrepreneurial intentions is important since at this stage of life, initial steps and actions related to career choices take shape and attitude towards setting up new ventures and engaging in entrepreneurial career can be developed (Shirokova et al., 2016). Furthermore, for society to benefit from enhanced economic development and activity led by female entrepreneurs, it is essential to study entrepreneurial intentions of females, especially female students (Westhead & Solesvik, 2016; Wilson et al., 2009). Females represent a reservoir of entrepreneurial talent and an inherent source of creativity, growth, innovation, wealth creation and employment (Westhead & Solesvik, 2016). Thus, for unleashing the talents of women as an engine of economic growth, it is imperative to maintain a pipeline of potential female entrepreneurs (Wilson et al., 2009). Even though the number of women entrepreneurs have consistently risen over the span of past couple of years, this pipeline may still be quite weak as the majority of the entrepreneurs are still men which creates a gender gap in this domain (Haus et al., 2013; Wilson et al., 2009). This gender gap in entrepreneurial behavior has been the subject of several studies that have shown the existence

of this gap in the desire, interest, motivation, and intentions of engaging in entrepreneurship (Mueller & Conway Dato-On, 2013). Thus, there is a growing interest in understanding the role of gender in entrepreneurial processes and activities (Haus et al., 2013).

Sex refers to the biological characteristics of individuals which classify them into males and females (Zampetakis et al., 2016). Categorization of biological sex may include a variety of living beings such as males, females, intersex, neuter and hermaphrodite (Marlow & Dy, 2018). Intersex refers to characteristics of sex which are atypical and such individuals do not possess the typical exclusive biological characteristics of either males or females (Jones, 2018; Griffiths, 2018). Most studies in the past have primarily focused on looking at binary gender (males/females) as a predictor of entrepreneurial intentions. Some examples of such studies include- (Yordanova & Tarrazon, 2010; Karimi et al., 2013; Haus et al., 2013; Arshad et al., 2016; Maes et al., 2014; Bagheri & Pihie, 2014; Srivasatava & Misra, 2017; Bazan, Datta, et al., 2019). Most of these researchers in the above mentioned studies, conducted quantitative studies and developed their models of EI based on Ajzen's (1991) theory of planned behavior (TPB) (Bazan, Datta et al., 2019). Studies which are based on the theoretical framework of TPB aim at understanding the precursors of intention, which are attitude towards behavior (ATB), perceived behavioral control (PBC) and subjective social norms (SSN) (Ajzen, 1991; Bazan, Datta et al., 2019). These studies investigated the impact of sex on the intentions of entrepreneurship by analyzing the direct effect, mediating effect or moderating effect of the single-item, binary construct that represented the difference between males and females (Maes et al., 2014; Haus et al., 2013; Bagheri & Pihie, 2014; Yordanova & Tarrazon, 2010).

The major contribution of my study lies in looking at gender as a continuum (non-binary) and investigate if this is associated with entrepreneurial intentions through the theory of planned

behavior constructs (ATB, PBC and SSN). To the best of my knowledge, this is among the first studies to use social role theory (SRT) by incorporating the concept of gender role identity (GRI) within a TPB-based model to study the relationship of gender with the EI of students. As discussed, studies in the past have found ATB, PBC and SSN to be important predictors of entrepreneurial intentions (Bazan, Shaikh, et al., 2019; Obschonka et al., 2012; Aeeni et al., 2015). Hence, the theory of planned behavior has been chosen as the theoretical framework for understanding the relationship between GRI and EI (Ajzen, 1991). This study is also grounded in social role theory as gender role identity tends to emerge from gender role stereotypes which are in turn based on the social role theory (Eagly, 1987; Eagly & Steffen, 1984; Wood & Eagly, 2012; Zampetakis et al., 2016).

In contrast to sex, GRI is the product and outcome of various cultural and social factors existing in the society (Fischer & Arnold, 1994; Zampetakis et al., 2016; Mueller & Conway Dato-On, 2008; Van Breen et al., 2017). Social role theory focusses on gender role stereotypes which emphasize the various roles that men and women are perceived to play in the society and community (Eagly, 1987; Eagly & Steffen, 1984; Wood & Eagly, 2012). Gender role identity develops from these gender role stereotypes and it can be considered as the extent to which individuals identify themselves with the attributes and traits related with the traditional gender role stereotypes and perceive themselves to possess such traits and attributes (Eddleston & Powell, 2008; Zampetakis et al., 2016).

Gender role identity includes the dimensions of masculinity and femininity (Bem, 1974; Mueller & Conway Dato-On, 2008, 2013). Some societies consider occupations related to a greater degree of assertiveness and rationality as masculine, while considering occupations related to dependency and nurturing as feminine (Mueller & Conway Dato-On, 2008). Therefore, the general stereotype

is that an entrepreneur's attributes of aggressiveness, assertiveness, independence and risk-taking will be more consistent with masculinity rather than femininity (Shneor et al., 2013; Mueller & Conway Dato-On, 2008).

Research on gender role identity and entrepreneurship can lead to a more in-depth understanding and investigation of entrepreneurial intentions than research on binary biological sex and entrepreneurial intentions because an individual person may tend to identify with the characteristics of masculinity and femininity in varying degrees (Fischer & Arnold, 1994). In other words, individuals may differ in the extent by which they incorporate, accept, and internalize the gender role stereotypes into their identities and self concepts (Zampetakis et al., 2016; Van Breen et al., 2017). Thus, a male individual may not necessarily conform to masculinity and a female individual may not necessarily be characterized by the presence of feminine traits (Fischer & Arnold, 1994).

Furthermore, past literature has focused on how entrepreneurial traits are more aligned with the socially constructed gender role identity dimension of masculinity rather than with the biological male (Mueller & Conway, 2008, 2013). Hence, instead of just focusing on biological sex differences, it is important to analyze, investigate and explore gender role identity which is formed, developed and shaped by various cultural and social factors (Fischer & Arnold, 1994; Zampetakis et al., 2016; Mueller & Conway Dato-On, 2008, 2013). Also, according to past studies, GRI can be considered as an important predictor of some entrepreneurial outcomes such as entrepreneurial self efficacy and business growth intentions. Examples of such studies include- (Zampetakis et al., 2016; Mueller & Conway Dato-On, 2008, 2013). The two studies - Mueller and Conway (2008) and Mueller and Conway (2013) have both found gender role identity to be a better predictor of entrepreneurial self efficacy as compared to biological sex in different samples of students. Thus

overall, focusing on gender role identity for investigating entrepreneurial intentions is important. Even though gender role identity has been studied as a predictor of entrepreneurial outcomes, there is a dearth of studies focusing specifically on gender role identity and its association with entrepreneurial intentions, thus creating a research gap. Hence, this study tried to address this research gap and answer the following research questions-

- Is gender role identity of an individual associated with his or her entrepreneurial intentions?
- Is gender role identity associated with entrepreneurial intentions through attitude towards behavior (ATB), subjective social norms (SSN) and perceived behavioral control (PBC)?

Finally, this study has some practical implications. The findings of this study can help Memorial University and other universities across the globe understand how gender role identity is related to entrepreneurial intentions and they can formulate their entrepreneurship plans, policies, initiatives and programs based on the outcomes of this study. This will eventually benefit the entrepreneurial students as they can get guidance and support from their respective university's improved entrepreneurial policies and initiatives (Bazan, Shaikh, et al., 2019; Bazan, Datta et al., 2019).

The remainder of the thesis is divided into sections. Literature review which discusses the current state of the knowledge of entrepreneurial intentions of students as influenced by characteristics of gender and this section also includes the theory-based Conceptual Model and Proposed Hypotheses which have been tested through partial least square-structural equation modelling (PLS-SEM) using SmartPLS v3.3.2. Data processing and analysis discusses the analysis and curation of the data which has been collected for the study. Result section and Discussion section discuss the findings of the study. The section on limitations and future research directions outline

the limitations of the study and the recommendations for possible future research work and this section is followed by the Conclusion section. References and appendices have been attached at the end.

Literature Review

Theory of Planned Behavior

Theory of planned behavior can be applied to different kinds of behaviors and to a variety of contexts (Knabe, 2012).According to the theory of planned behavior, intention can be considered as the central factor and the most significant determinant of a person's behavior (Ajzen, 1991; Haus et al., 2013). Intention, in turn, is impacted by attitude towards behavior, perceived behavioral control and subjective social norms (Ajzen,1991; Karimi et al., 2013).

Attitude towards behavior is the degree or level to which a person judges a particular action or behavior to be beneficial and favorable (Ferri et al., 2018; Phipps, 2012). It also depends on the beliefs and expectations about the impact of the various outcomes which may result from that specific kind of behavior (Phipps, 2012). In the case of entrepreneurial intentions, it indicates an individual's favorable or unfavorable assessment of the intentions of becoming an entrepreneur (Ferri et al., 2018).

Perceived behavioral control focusses on the propensity towards acting and the perception of feasibility of engaging in a specific type of behavior (Ferri et al., 2018). In case of entrepreneurship, it indicates the perception of individuals regarding the ease or difficulty with which they can perform the entrepreneurial actions (Ferri et al., 2018). Previous experiences and anticipated obstacles are taken into consideration by an individual when deciding whether to perform a specific action or not (Ferri et al., 2018). Perceived behavioral control is supported by

control beliefs which are based on "actual and perceived personal inadequacies and external obstacles" (Phipps, 2012, p.79). Few people will develop intentions of entrepreneurship if they develop the perception that there is a significant probability of failure (Mueller & Conway Dato-On, 2008). An individual may develop the personal attractiveness to start an entrepreneurial venture and also feel personally confident and capable of setting it up when they expect benefits arising from major outcomes associated with that venture (Dabic et al., 2012).

Subjective social norms include the perceptions of societal pressures and the opinion of the people in the society about a proposed behavior (Ferri et al., 2018; Phipps, 2012). According to Ferri et al. (2018) it also includes the expectation of assistance and support from important people in the society like parents for young entrepreneurs. Here, the prospective entrepreneur is concerned about whether the significant reference individuals in his or her life like friends, family members and role models approve or disapprove of his or her setting up a new venture (Bazan, Shaikh, et al., 2019). It also considers the extent to which the thoughts and opinion of such reference individuals' matter to the prospective entrepreneur (Bazan, Shaikh et al., 2019). When individuals think of setting up entrepreneurial ventures, they desire support from various sources whom they can trust and with whom they can share their thoughts and ideas about entrepreneurship (Sahban et al., 2016). According to the survey study conducted by Sahban et al. (2016) on business students in Indonesia, there exists a positive relationship between a student's social support system and their propensity towards engaging in entrepreneurship. Social groups comprise of primary groups which include parents, spouse and siblings (family) and secondary groups or reference groups which comprise of friends, teachers, and colleagues (Sahban et al., 2016). Social support includes the intensity of interaction between the prospective entrepreneur or the entrepreneur and his/her friends, peers and family to whom he/she is attached and it also includes the potential

entrepreneur's expectations and beliefs regarding the advice, opinion, help and assistance that he/she can receive from his/her social groups (Sahban et al., 2016). "Social support, therefore is considered as building blocks for social and psychological integration of entrepreneurs in the society" (Sahban et al., 2016, p.34).

Further Sahban et al. (2016) adds that, the family especially parents play a crucial role in inspiring and motivating children to choose entrepreneurship as a career. Family relationships can lead to strong ties in business and entrepreneurial networks and family members are the primary source of sharing and discussing new entrepreneurial thoughts and ideas (Sahban et al., 2016). Furthermore, Zhang et al. (2014) adds that children who grow up in a family business environment get exposed to entrepreneurship by seeing, listening, knowing, feeling and understanding entrepreneurial events and circumstances and all this can lead to the development of entrepreneurial intent. Self-employed entrepreneurial parents can become entrepreneurial role models for children (Shirokova et al., 2016).

According to Sahban et al. (2016), peer groups are comprised of individuals who are already a part of a particular business and therefore they can provide technical advice to prospective entrepreneurs which can create a highly supportive environment for entrepreneurial ventures. Peer support is also an "ecosystem of exchange of help" which is based on the principles of both shared responsibility and mutual respect and shared understanding of the benefits resulting from them (Sahban et al., 2016, p.35). Peer support encourages the peers to understand each other's issues and needs and relate to one another in a highly supportive manner which enables them to learn from each other (Sahban et al., 2016).

In the past, theory of planned behavior has been considered as a theoretical framework which is reliable for studying, examining, and understanding the entrepreneurial intentions of students

(Bagheri & Pihie, 2014). Past research has also focused on attitude towards behavior as an important factor that has an impact on the entrepreneurial career choice of students (Bagheri & Pihie, 2014). For example, a study was conducted by Aeeni et al. (2015) which focused on identifying the various determinants of entrepreneurial intentions of female students using Ajzen's theory of planned behavior. The sample comprised of graduate and undergraduate management students of Allameh Tabatabai University located in Iran (Aeeni et al., 2015). The study found that out of all the studied factors, attitude towards behavior had the greatest influence on entrepreneurial intentions (Aeeni et al., 2015). ATB exhibited the strongest correlation with EI of the students as compared to the other two constructs of the theory of planned behavior (subjective social norms and perceived behavioral control) (Aeeni et al., 2015).

Further, according to another survey study conducted by Ferri et al. (2018), on 441 female students from Italy, it was found that subjective social norms had an influence on the entrepreneurial intentions of the business students and in case of the female students, it was found that their entrepreneurial intentions were impacted also by perceived behavioral control. According to a cross sectional survey study conducted by Obschonka et al. (2012) on 488 scientists from Germany, it was found that attitude towards behavior, perceived behavioral control and subjective social norms predicted entrepreneurial intentions. A study by Bazan, Shaikh et al. (2019) showed that the percentage of variance in entrepreneurial intentions explained by the theory of planned behavior constructs (ATB, SSN and PBC) is high. Thus, according to past studies and literature, constructs of theory of planned behavior have been found to predict the entrepreneurial intentions (Bazan, Shaikh, et al., 2019; Obschonka et al., 2012; Aeeni et al., 2015). Hence, focusing on the relationship between these constructs and entrepreneurial intentions is important. Thus, based on

past research work and literature, theory of planned behavior was chosen for this research to study and understand the entrepreneurial intentions of students.

Social Role Theory, Gender Role Stereotypes and Gender Role Identity

Social role theory suggests that the social construction of gender gives rise to gender role stereotypes and gender role identity (Eagly, 1987; Eagly & Steffen, 1984; Wood & Eagly, 2012). Gender role stereotypes emerge and develop through a focus on the various social roles that men and women occupy in the community and society (Eagly, 1987; Eagly & Steffen, 1984). The behavior enacted in these social roles have an impact on the traits and attributes that perceivers tend to associate with the members of a particular group (Eagly & Steffen, 1984; Eagly,1987; Wood & Eagly, 2012). Since men and women tend to occupy different roles in the community and society, the characteristics that are perceived to be associated with men and women tend to differ (Wood & Eagly, 2012; Eagly & Steffen, 1984; Eagly, 1987). This results in the emergence and development of gender role stereotypes (GRS) which are considered as widely shared beliefs and ideas about the traits, characteristics and attributes associated with men and women (Wood & Eagly, 2012; Eagly, 1987; Eagly & Steffen, 1984). GRS provide information about the kinds of behaviors that are considered appropriate and typical for a specific group of people (Van Breen et al., 2017; Eagly & Steffen, 1984).

A core and major tenet of social role theory is that the gender role stereotypes tend to reflect perceivers' observations and inferences of what individuals (men and women) generally tend to do in their various roles in their regular day to day lives (Wood & Eagly, 2012; Eagly & Steffen, 1984). “Stereotypic beliefs about the attributes of men and women thus reflect the division of labor as practiced in that society” (Wood & Eagly, 2012, p.71). Gender socialization that happens during childhood and adolescence and is facilitated by family, school, parents, media and peers,

encourage and motivate individuals to adhere to and conform to gender role stereotypes (Eddleston & Powell, 2008).

According to various studies, universal dimensions of gender role stereotypes are agency and communion (Abele & Wojciszke, 2007; Wood & Eagly, 2012; Eagly, 1987). Agency includes an assertive and instrumental orientation which is generally associated with male individuals and communion includes an emotional and interpersonal orientation which is generally related with female individuals (Abele & Wojciszke, 2007; Wood & Eagly, 2012; Eagly & Steffen, 1984; Eagly, 1987). Agentic qualities tend to be expressed by self-expansion, dominance, self-assertion, ambition and competence whereas communal qualities tend to be indicated by concern for others, helpfulness and selflessness (Abele & Wojciszke, 2007; Wood & Eagly, 2012; Eagly & Steffen, 1984; Eagly, 1987). Men more than women are considered to be possessing agentic traits and qualities and women, more than men, are considered to be communal (Abele & Wojciszke, 2007; Wood & Eagly, 2012; Eagly & Steffen, 1984; Eagly, 1987).

Gender role stereotypes can have a strong and powerful impact on the behavior and cognition of individuals (Gupta et al., 2008). Individuals in the society are made to understand (explicitly or implicitly) which activities, roles and types of behavior are desirable and acceptable for males or females in the society (Zampetakis et al., 2016). As individuals become aware of the existence of GRS in their communities and societies, they may develop a tendency to behave and respond in a manner which is consistent with that predicted by the stereotypes (sometimes even unconsciously) (Gupta et al., 2008). However as discussed earlier, this may not be applicable to all individuals as people may tend to differ in their level of incorporation of gender role stereotypes into their personalities and identities (Zampetakis et al., 2016; Fischer & Arnold, 1994).

Gender role identity which stems from gender role stereotypes is the extent to which individuals internalize, incorporate and develop their beliefs, behavior, attitudes and career choices based on the socially and culturally established expectations of behavior associated with gender role stereotypes (Zampetakis et al., 2016; Mueller & Conway Dato-On, 2013; Mukundan & Zakkariya, 2018). Furthermore, according to Zampetakis et al. (2016), gender role identity is an important element of self identification and self conception that places individuals within the structures of the society. It is a psychological construct which has been both empirically as well as theoretically associated with gender socialization (Eddleston & Powell, 2008). Gender role identity is created through a person's own identity formation process, along with his or her interaction with the society and community (Orser et al., 2011).

Gender role identity emerging from gender role stereotypes forms along the lines of masculinity and femininity (Bem, 1974; Mueller & Conway Dato-On, 2008; Eddleston & Powell, 2008; Zampetakis et al., 2016). Masculinity refers to beliefs about the extent or level to which an individual person possesses traits and attributes associated with male gender role stereotypes and agentic qualities such as aggressiveness, dominance, ambition, risk taking, assertiveness, competitiveness, logic and independence (Bem, 1974; Mueller & Conway Dato-On, 2008; Eddleston & Powell, 2008; Zampetakis et al., 2016). Femininity or expressiveness refers to beliefs about the extent and level to which an individual person possesses attributes and traits associated with female gender role stereotypes and communal qualities such as compassion, affection, care, sensitivity, warmth, submissiveness, dependence, nurturing, sympathetic and understanding (Bem, 1974; Mueller & Conway Dato-On, 2008; Eddleston & Powell, 2008; Zampetakis et al., 2016). Generally, females are socialized to identify and accept those traits and attributes that are considered to be associated with femininity, and males are socialized to identify and embrace those

attributes and traits that represent masculinity (Zampetakis et al., 2016). However, some males may not necessarily conform to masculine traits and some females may not necessarily embrace femininity (Fischer & Arnold, 1994). As discussed earlier, entrepreneurial activities being related to greater degree of assertiveness, risk behavior, tolerance towards ambiguity, independence, over optimism and rationality, tend to be aligned with perceptions of masculinity rather than with that of femininity (Mueller & Conway Dato-On, 2008, 2013; Majumdar & Varadarajan, 2013; Amentie & Negash, 2015).

In what follows, I will provide a synthesis discussing the evolution of the knowledge on gender/sex differences in entrepreneurial intentions of mainly students. I will be discussing a number of research studies that have focused on various approaches for investigating entrepreneurial intentions from the perspective of binary gender. Most of the authors in these past studies have referred to this binary measure of biological sex (males and females) as "gender" which does not capture the concept of socially and culturally constructed gender. On the other hand, my study looked at gender role identity which is a continuum that incorporates the social and cultural construction of gender.

Studies on binary biological sex and entrepreneurship

The authors of most of the studies discussed in this section wanted to investigate whether the intentions of entrepreneurship were different for males and females (whether males had a higher intent and females had a lower intent or vice versa) and also what factors led to the development and formation of different entrepreneurial intentions among men and women. These studies focused on the binary (males and females) biological sex. Further, Haus et al. (2013) used the binary biological sex , because these authors wanted to understand whether the gender differences in entrepreneurial actions and activities are resulting from gender differences in the intentions of

entrepreneurship or not and whether these differences have been strong enough to result in more men than women setting up entrepreneurial ventures. Most of these studies tried to understand the difference in entrepreneurial intentions between men and women through the antecedents of the theory of planned behavior (ATB, PBC and SSN). Overall, the findings of these studies exhibit that generally males tend to have higher intentions of entrepreneurship as compared to females and subjective social norms tend to play a key role in the entrepreneurial intentions of women.

Wilson et al. (2009) investigated the relationships between gender, entrepreneurial self efficacy and entrepreneurship education (EE) on entrepreneurial behavior and EI by studying samples in three different stages of career development and education in the USA : students from middle and high school, students enrolled in MBA, and early career adults. The results of the study show a stronger positive influence of EE on the entrepreneurial self efficacy of females as compared to males (Wilson et al., 2009). Yordanova and Tarrazon (2010) explored the effects of gender on EI and identified the factors that may be responsible for gender differences in EI by conducting a survey on university students in Bulgaria. The findings showed that females have lower intentions of setting up new entrepreneurial ventures as compared to males (Yordanova & Tarrazon, 2010). Also, the effect of gender on EI was fully mediated by PBC and it was partially mediated by SSN and ATB (Yordanova & Tarrazon, 2010). Females have lower ATB, PBC and SSN for setting up new entrepreneurial ventures (Yordanova & Tarrazon, 2010). Female students who perceive that the social subjective norms associated with entrepreneurship are supportive and also possess higher perceived behavioral control are more likely to display higher EI as compared to other females (Yordanova & Tarrazon, 2010).

Through a survey study, Karimi et al. (2013) explored the effects of both role models and gender on EI of college students from Iran. The findings showed that entrepreneurial role models had an

indirect influence on EI through ATB, PBC and SSN (antecedents in the theory of planned behavior) (Karimi et al., 2013). According to the study, there were no gender differences in the relationship between PBC and EI (Karimi et al., 2013). However, gender had an impact on the other relationships existing in the TPB such that ATB was a weaker predictor and SSN was a stronger predictor of EI for female students as compared to male students (Karimi et al., 2013). The outcomes of the study also support past research findings which showed that knowing an entrepreneurial role model who is successful has a positive impact on ATB, PBC and SSN of students (Karimi et al., 2013).

Further, Haus et al. (2013) conducted a meta-analysis and investigated the relationship between gender and EI as mediated by ATB, PBC and SSN of both non-students and students in USA and Europe. According to the findings, men have higher average EI as compared to women (Haus et al., 2013). Even though significant, the gender differences in EI and the motivational constructs were found to be small and thus could not provide a sufficient explanation for the substantial and significant differences in the process of actually starting an entrepreneurial venture (Haus et al., 2013). Also, the moderator analyses exhibited differences in the relationship between gender and EI between US and Europe and also between non-students and students (Haus et al., 2013). The influence of gender on EI was found to be positive in the USA and negative in Europe which suggested that the EI for American women is high whereas the EI for European women is low. (Haus et al., 2013). Further, the impact of ATB on EI was found to be twice as high in USA when compared to Europe (Haus et al., 2013). When comparing non-students and students, it was found that female students displayed a stronger EI as compared to the male students while female non-students exhibited a weaker EI as compared to male non-students (Haus et al., 2013).

Similarly, a study conducted by Bagheri and Pihie (2014), examined the relationships among SSN, entrepreneurial self-efficacy, ATB, and EI and investigated how gender has an impact on these relationships. Data was obtained from 719 students from Malaysia across five universities (Bagheri & Pihie, 2014). The results showed that gender has a significant moderating effect on the relationship between EI of students and its antecedents (Bagheri & Pihie, 2014). Self-efficacy and ATB had a greater impact on the entrepreneurial intentions of male students whereas SSN and ATB had a greater influence on the entrepreneurial intentions of the female students (Bagheri & Pihie, 2014). ATB of females had a greater contribution towards development of their EI as compared to the males (Bagheri & Pihie, 2014). According to the findings, ATB can be considered as the factor that has the strongest influence on the entrepreneurial intentions of both males and females (Bagheri & Pihie, 2014). Maes et al. (2014) explored the various factors that predicted gender differences in the EI of business students in Belgium. The results of the survey study showed that the impact of gender on EI is mediated by the factors PBC and ATB, but not by SSN (Maes et al., 2014).

Afterwards, Westhead and Solesvik (2016) investigated the links between the participation in EE, risk-taking skills and alertness, and the EI of students in Ukraine. The results exhibited that EE students reported high EI but EE was not able to bring equal benefits for all the students (Westhead & Solesvik, 2016). According to their results, women were significantly less likely to report high entrepreneurial intentions (Westhead & Solesvik, 2016). Male EE students and non EE students who cited the risk perception skill reported higher EI but female EE students who cited the risk perception skill reported lower EI (Westhead & Solesvik, 2016). In another survey study conducted by Arshad et al. (2016) data were collected in multiple sessions from 495 graduating students of the largest university in South Asia. Findings suggested that ATB has a positive effect

on EI (Arshad et al., 2016). The results of the study also showed that perceived entrepreneurial self-efficacy has a greater impact on the ATB of men rather than on the ATB of women whereas SSN has a greater impact on the ATB of females (Arshad et al., 2016).

More recently, Srivastava and Misra (2017) investigated the antecedents of EI of young females in India. Their findings show that social valuation is an important antecedent of EI of young female students (Srivastava & Misra, 2017). The study also identified that EE is a significant element that impacts the EI of young females in India (Srivastava & Misra, 2017). Further, Ojewumi et al. (2018) explored the influence of self efficacy and gender on EI of students in Nigeria through a survey study. The results of the study show that there is no significant difference in the EI of female and male students (Ojewumi et al., 2018).

Most recently, Arora and Jain (2019) conducted a comparative study on the EI of male and female students of private and public management institutes in India. Their results showed that there are differences in the EI levels between male and female students (Arora & Jain, 2019). Also, Bazan, Datta, et al. (2019) analyzed the influence of a university's support system and environment on the precursors of EI of female university students. Their findings confirm that the two precursors of EI—i.e., ATB and PBC—mediate the impact of the university's support system and environment on the EI of female students (Bazan, Datta, et al., 2019). The study also confirms that the university's support system and environment consist of three distinct but interrelated dimensions, which are start-up support, entrepreneurial milieu and entrepreneurship training (Bazan, Datta, et al., 2019).

As discussed earlier, all the above studies were limited to the binary biological sex and did not consider gender as a continuum and this creates a gap in the literature as it is important to investigate entrepreneurial intentions from the perspective of the socially constructed gender role

identity. Now, I will discuss studies focusing on the non-binary measure of gender which is gender role identity. These studies are based on the relationship between gender role identity and some outcomes of entrepreneurship and show that GRI has been found to be a key predictor of important constructs such as entrepreneurial self efficacy and business growth intentions (Mueller & Conway Dato-On, 2008, 2013; Zampetakis et al., 2016). Some of the authors in these studies have referred to gender role identity with the term "gender role orientation" and these two can be considered as similar.

Studies on gender role identity and entrepreneurship

A study conducted by Zampetakis et al. (2016), explored the impact of gender role identity (masculinity and femininity) on the intentions of business growth of both males and females in firms that were established. 572 business owners (286 females) completed a questionnaire survey (Zampetakis et al., 2016). The findings revealed that both masculinity and femininity completely mediated the impact of the entrepreneurs' sex on the intentions of business growth (Zampetakis et al., 2016). Women who exhibited a higher orientation towards femininity and independent self-construal had lower business growth intentions as compared to those having lower independent self-construal (Zampetakis et al., 2016).

A survey study on students by Mueller and Conway Dato-On (2008) investigated GRI (referred to as gender role orientation by the authors of the study), as a possible determinant of the differences in entrepreneurial self-efficacy of students in the USA. The results suggested that GRI is a better predictor of entrepreneurial self-efficacy than sex (Mueller & Conway Dato-On, 2008). Another survey study by Mueller and Conway Dato-On (2013), tried to understand the impact of biological sex, gender role identity and culture on entrepreneurial self-efficacy of business students from USA and Spain. According to the findings, gender role identity (referred to as gender role

orientation by the authors of the study), had a greater impact on entrepreneurial self efficacy than biological sex (Mueller & Conway Dato-On, 2013). Also, among the business students from USA, the traditional concept of entrepreneurship being related to masculinity was diminishing (Mueller & Conway Dato-On, 2013). A new stereotype seemed to be developing in USA which exhibited a balance between masculine and feminine attributes and characteristics (Mueller & Conway Dato-On, 2013). However, among the business students in Spain the traditional gender-role stereotypes related to entrepreneurship were still dominant (Mueller & Conway Dato-On, 2013). Further, Pérez- Quintana et al. (2017) investigated the relationship between biological sex, GRI (referred to as gender role orientation by the authors of the study), and EI of students in Barcelona (Spain). The results confirmed that androgynous and masculine GRI is a better predictor of EI as compared to biological sex (Pérez -Quintana et al., 2017).

Overall, these studies have looked at gender characteristics from the perspective of its social construction. Although GRI has been studied for understanding some of these entrepreneurial outcomes, very few studies analyzed the influence of gender (masculinity and femininity) on EI of students. As discussed earlier, investigating EI through GRI is important and past studies have shown that TPB constructs have predicted entrepreneurial intentions. Hence studying GRI and EI through TPB constructs can make a significant contribution to the literature. To the best of my knowledge, my study makes the first attempt to study the mediating effects of the TPB constructs in the relationship between gender role identity and entrepreneurial intentions of students.

Conceptual model and proposed hypotheses

In this study, the TPB-based model of EI by Bazan, Shaikh, et al. (2019) as depicted below in figure 1.1 was adopted. The TPB model captures the three precursors of EI, i.e., ATB, SSN, PBC (Ajzen, 1991; Bazan, Shaikh et al., 2019). Hypotheses 1, 2 and 3 correspond to this model which

predicts EI and is based on the traditional TPB (Ajzen, 1991). A positive ATB of starting a new entrepreneurial venture can generally lead to the development of a stronger intention to set up a new business venture (Bazan, Shaikh, et al., 2019). A strong PBC regarding starting a new entrepreneurial venture can generally lead to a strong intention to perform that behavior (Bazan, Shaikh, et al., 2019). If the social norms and the opinion of important people in the prospective entrepreneur's life, support entrepreneurial activities and the opinion of those important reference people matter to the prospective entrepreneur, then the intention to start a new entrepreneurial venture can be stronger when those reference individuals seem to encourage that particular behavior (Bazan, Shaikh, et al., 2019). Hypotheses 4 and 5 correspond to the internal configuration of the precursors of intention (Bazan, Shaikh, et al., 2019). Findings in the literature about the importance of SSN as an influencer of EI have not been consistent (Bazan, Shaikh, et al., 2019). However, it is believed to have an impact on both ATB and PBC and it is believed to influence EI through ATB and PBC (Bazan, Shaikh, et al., 2019).

The hypotheses related to the TPB are stated below:

H1: ATB has a positive influence on EI

H2: SSN has a positive influence on EI

H3: PBC has a positive influence on EI

H4: SSN has a positive influence on ATB

H5: SSN has a positive influence on PBC

Hypotheses 6, 7 and 8 correspond to the relationship between GRI, ATB, SSN, PBC and EI of students. As discussed, the concept of masculinity and femininity is embedded in the culture, is not questionable and is reflected in "organizational contexts", "sex stereotyping" and "gendered job segregation" (Jones, 2015, p.307). Case studies on entrepreneurship mostly focus on men and entrepreneurship tends to be typically associated with characteristics that are masculine (Gupta et al., 2008). According to recent findings, both men and women tend to perceive entrepreneurs to possess masculine traits (Mueller & Conway Dato-On, 2008; Gupta et al., 2008). Further, according to the results of the study by Mueller and Conway Dato-On (2013) entrepreneurial self-efficacy was highest among those individuals who possessed a masculine gender role identity and lowest among those individuals who possessed feminine gender role identity in a sample of students from Spain.

From the above discussion and the literature, we can hypothesize that gender role identity (masculinity and femininity) can be associated with an individual's entrepreneurial intentions through its association with attitude towards behavior, subjective social norms and perceived behavioral control. Perceptions of lack of fit between femininity and entrepreneurial traits can lead to those individuals identifying themselves with femininity consider entrepreneurial activities to be full of difficulties, problems and obstacles for them and also being less beneficial and favorable for them. Such individuals may develop low perceived behavioral control and weak attitude towards behavior. On the other hand, perceptions of an appropriate fit between masculinity and entrepreneurial traits can lead to individuals identifying themselves with masculinity consider entrepreneurial activities to be more beneficial and favorable for them and have less obstacles, problems and difficulties for them. Such individuals may develop high perceived behavioral control and strong attitude towards behavior. Negative social norms and perceptions about the

abilities of feminine individuals in handling entrepreneurial activities and positive social norms and perceptions about the capabilities of masculine individuals in handling entrepreneurship lead to less favorable social norms related to femininity and entrepreneurship and more favorable social norms related to masculinity and entrepreneurship. Similarly, those individuals identifying themselves as masculine may perceive that the important people in their life, society and community (example- family members, friends and peers) associate entrepreneurial activities with masculinity and this in turn can enhance their subjective social norms. Those individuals identifying themselves as feminine may also perceive that the important people in their life, society and community (example- family members, friends and peers) associate entrepreneurial activities with masculinity and this in turn can lower their subjective social norms.

Thus overall, from the above discussion, it can be hypothesized that perceptions of incongruency between femininity and entrepreneurial traits can lead to those individuals identifying themselves with femininity possess lower levels of ATB, PBC and SSN with regard to entrepreneurship which may lower their entrepreneurial intentions and perceptions of an appropriate fit between masculinity and entrepreneurial traits can lead to individuals identifying themselves with masculinity possess higher levels of ATB, PBC and SSN with regard to entrepreneurship and this may enhance their entrepreneurial intentions. Thus overall, it maybe hypothesized that GRI (masculinity/femininity) may be associated with EI through its association with ATB, PBC and SSN.

The hypotheses related to GRI, ATB, PBC, SSN and EI are stated below:

H6: GRI is positively associated with ATB

H7: GRI is positively associated with SSN

H8: GRI is positively associated with PBC

Mediation hypotheses involving ATB, PBC, SSN, GRI and EI are mentioned below-

H9: ATB mediates the relationship between SSN and EI

H10: PBC mediates the relationship between SSN and EI

H11: ATB mediates the relationship between GRI and EI

H12: SSN mediates the relationship between GRI and EI

H13: PBC mediates the relationship between GRI and EI

The model of the study has been shown in figure 1.1 below.

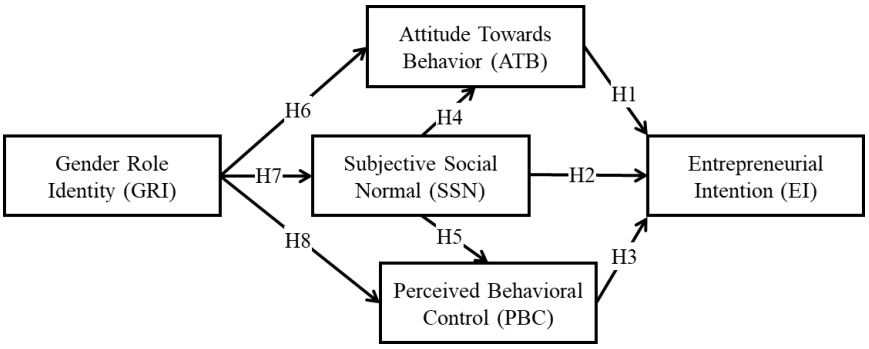

Figure 1.1: Model with the hypotheses (Based on Bazan, Shaikh et al., 2019)

Methods

Survey Development

In order to test the hypotheses, a cross sectional survey was conducted, and data were collected during the months of February, March and April 2020 using a structured questionnaire. Questionnaire was distributed through an online anonymous survey which was hosted on Qualtrics. Validated survey measures, scales and elements which had been used in past research

studies were used for measuring the various constructs that have been analyzed (Liñán & Chen, 2009; Kachel et al., 2016).

Recruitment procedure, participants, and sample

Data were collected from both male and female students from Memorial University of Newfoundland (MUN), St John's, Newfoundland and Labrador, Canada. This research was restricted only to MUN so that the various extraneous factors that could possibly differ across different universities, locations and geographic regions could be controlled as potentially the entrepreneurial ecosystem varies between geographical regions and universities (Pourhoseingholi et al., 2012).

Before submitting the study proposal for review to the ethics department, three academics and five non-participating students reviewed the questionnaire to check for ease of completion, precision of vocabulary and any possible ambiguity (Bazan, Shaikh, et al., 2019). Before administering the survey to the target population, the Interdisciplinary Committee on Ethics in Human Research (Memorial University) reviewed the study proposal for compliance with the ethics policies of the University <Insert ethics approvals from Appendix 1 here>. The recruitment letter explained the purpose of the study, instructions for answering and completing the questionnaire and the confidentiality agreement. I used the software packages SPSS® v25 and SmartPLS® v3.3.2 to analyze the data.

Students were recruited in four ways: (1) an email invitation was sent through various associations, clubs and societies in the University such as the Undergraduate and Graduate Student Unions, the Memorial Centre for Entrepreneurship and the Internationalization Office; (2) email invitation was sent through faculty list serves (this was coordinated by the public relations/communications

person in each faculty and the departmental secretaries); (3) posters and table cards were placed all across campus of the University (for example-in the University center cafeteria); and- (4) Facebook and Linked in- recruitment materials were posted on the University departmental Facebook pages by the administrators of those pages; on Linked in by the author and on MUN off campus housing page.

Standard ethics procedures were followed. It was entirely up to the participants to decide whether to take part in this research or not. If they chose not to take part in this research or if they decided to withdraw from the research once it started, there were no negative consequences for them at present or in the future. Participants were informed of their voluntary participation and their right to withdraw in the informed consent letter at the beginning of the survey. Participants and their responses were anonymous. Consent was implied when the participants completed the survey and pressed the 'submit' button and no responses were recorded until the 'submit' button was pressed. They were free to skip questions and quit participating at any point by simply closing the browser. Personal identifiers were not collected and therefore if the participants completed the questionnaire and submitted the survey and then changed their mind, their data would be in the pool of anonymous completed questionnaires and it was not possible to identify it for deletion. Because names or specific identifying data were not collected, both participation and data were anonymous, and it was impossible to identify individuals

Measures < Insert questionnaire from Appendix 2 here>

Attitude towards behavior - Assessed attitude towards behavior using the Entrepreneurial Intentions Questionnaire developed by Liñán and Chen (2009). An example of an item is: – "A career as an entrepreneur is attractive for me."

Subjective social norms - Assessed subjective social norms using the Entrepreneurial Intentions Questionnaire developed by Liñán and Chen (2009). An example of an item is: – "My immediate family values the entrepreneurial career more than any other career."

Perceived behavioral control - Assessed perceived behavioral control using the Entrepreneurial Intentions Questionnaire developed by Liñán and Chen (2009). An example of an item is: – "I am prepared to start a viable business."

Entrepreneurial Intentions - Assessed entrepreneurial intentions using the Entrepreneurial Intentions Questionnaire developed by Liñán and Chen (2009). An example of an item is: - "My professional goal is to be an entrepreneur."

The responses of all the above measures were based on a Likert type scale where the participants were asked to indicate their level of agreement with the statements, where (**7**) represented **complete agreement**, and (**1**) represented **complete disagreement.**

Gender role Identity – was assessed using two measures. First, the Traditional Masculinity and Femininity Scale (Kachel et al., 2016) which composed of six items :- "Ideally, I would like to be…; Traditionally, my attitudes and beliefs would be regarded as…; I consider myself as…; Traditionally, my interests would be regarded as..; Traditionally, my behaviour would be regarded as..; and Traditionally, my outer appearance would be regarded as…" The responses were based on a Likert type scale where the participants were asked to indicate their personal assessment, where (**7**) represented **Very feminine**, and (**1**) represented **Very masculine**. Second a continuum measure was also included (Bittner & Goodyear-Grant, 2017). The participants were asked to place themselves somewhere along a scale where:- the far right of the scale reflected a person who feels that he or she is 100% feminine, while the far left of the scale reflected a person who feels that he

or she is 100% masculine (Bittner & Goodyear-Grant, 2017). The continuum was from 0 -100, where 0 represented those who were 100% masculine and 100 represented those who were 100% feminine (Bittner & Goodyear-Grant, 2017). However, the data obtained from this measure were not analyzed since the responses were not usable. Some of the respondents did not answer this question appropriately and some respondents did not answer the question at all.

Demographic data were collected including age, gender, immigration status of the students (Canadian citizens/Permanent residents of Canada or International Students), area of study, level of study (undergraduate and graduate) and year in the program.

Demographics

The final dataset comprised of the following- 57 males, 85 females, 7 were N/A, 80 undergraduate students, 67 graduate students, 2 were N/A, 82 Canadians or permanent residents, 65 international students and 2 were N/A.

Data Processing and Analysis

Data Screening

This section on data screening has been written based on the recommendation from the article by Bazan, Shaikh, et al., 2019. In total there were 176 responses with an average completion rate of 88%. First, I performed a thorough screening of the data. Missing data on rows (individual responses) were first analyzed and 22 rows with missing values were detected. From these, 20 rows were missing more than one value (> 5%) while 2 rows were missing one value (< 5%). The rows with more than one missing value were deleted and the rows with only one missing value were kept to see if these values were candidates for imputation (Bazan, Shaikh et al., 2019).

Unengaged respondents were looked for (Bazan, Shaikh, et al., 2019). These respondents completed the survey but were not paying attention or were not interested in giving a candid response. 13 rows which showed the odd pattern of responses and very low time of completion were deleted. To assess whether the missing values (2 rows were missing one value after deleting "unengaged" respondents) are missing completely at random, Little's Missing Completely at Random (MCAR) test was performed (Bazan, Shaikh, et al., 2019). Little's MCAR test returned: chi-square = 38.710, DF = 42, Sig. = 0.616, i.e., the test failed to reject the null hypothesis that the values are missing completely at random. Thus, the few missing values are candidates for imputation. The missing values were imputed by using the Expectation Maximization (EM) algorithm and it was done separately for each measurement variable category (Bazan, Shaikh, et al., 2019). That is, 1 missing value for PBC was imputed and 1 missing value for EI was imputed. Mahalanobis distance test was used to identify influential multivariate outliers (Bazan, Shaikh, et al., 2019). These are usually those respondents who did complete the entire survey but there were odd patterns in their responses and these patterns had not been captured or detected by the previously used techniques (Bazan, Shaikh, et al., 2019). There were few rows with larger than average Mahalanobis distances that appeared to be outliers. To discern whether these entries were outliers, the Mahalanobis distance was compared with a chi-square distribution with the same degrees of freedom represented by the number of independent measurement variables. 1 row with probability $p < 0.001$ was detected and this entry was deleted from the dataset. Following, the data were tested for outliers and normality (Bazan, Shaikh, et al., 2019). Skewness and Kurtosis were calculated to check for normality of the data (Bazan, Shaikh, et al., 2019). A couple of variables showed skewness and kurtosis that were slightly larger than the prescribed threshold of ±1(Bazan, Shaikh et al., 2019; Hair, Hult, et al.,2017). The largest skewness and kurtosis were

1.078 and –1.502 for SSN4 and GRI6, respectively. These values for skewness and kurtosis show that the distributions are slightly non-normal.

Data Analysis

The entire data analysis section (including assessment of measurement model section and assessment of structural model section) has been written based on the recommendation from the books and articles by (Hair, Hult, et al., 2017; Hair, Sarstedt, et al., 2017; Hair et al., 2019) for analyzing the results after using PLS-SEM. For this study, partial least square- structural equation modeling (PLS-SEM) technique was used to analyze the data, test the hypotheses and the model. The main objective of applying structural equation modelling is to both predict as well as explain the various target constructs (Hair, Hult, et al., 2017). PLS-SEM is a nonparametric method (no assumptions of distribution) and generally has the capability of achieving high statistical power even if the sample sizes are small (Hair, Hult et al., 2017; Hair et al., 2019) Taking into consideration, the characteristics of this study in terms of its data sample and theoretical background, PLS-SEM is considered to be the appropriate choice. The model tested in this study has five latent variables with reflective constructs (measurement models), i.e., the exogenous variable GRI, the exogenous/endogenous variables ATB, SSN, and PBC, and the endogenous variable EI.

The first step involved in the evaluation of PLS-SEM results includes examination and assessment of the measurement model and for reflective and formative constructs, the relevant criteria are different (Hair et al., 2019). The model in this study includes reflective measurement models only; thus, the following were evaluated 1) Indicator loading values 2) internal consistency reliability, 3) convergent validity, and 4) discriminant validity of the measurement model.

Assessment of the reflective measurement model:

1) Indicator loading values-The indicator (outer) loading values were examined. Loadings that are above 0.708 are generally recommended as this gives an indication that the construct provides an explanation for more than 50 per cent of the variance in the indicator (Hair et al., 2019). Hence this provides an acceptable reliability of the item (Hair et al., 2019). In this study, a preliminary examination of the outer loadings revealed that they were all statistically significant, although there were two indicators whose outer loadings were below the threshold of 0.708. These indicators were SSN3 (0.481) and SSN4 (0.419). After closer examination of the wording of these indicators, it was decided that there are legitimate reasons for deletion of these indicators or for their separation within a higher order construct. For example, indicator SSN3 "My immediate family would approve of my decision to start a business" and indicator SSN4 "My friends would approve of my decision to start a business," reflect a dimension of SSN that is closely associated with the support that an individual could avail of within the PBC. A more parsimonious revised model was chosen, and these indicators were deleted. A table (table 1.1) with the indicator loadings (outer loadings) and a figure (figure 1.2) that represents the model with the indicator variables are shown below.

Table 1.1: Indicator Loadings

	ATB	EI	GRI	PBC	SSN
ATB1	0.912				
ATB2	0.906				
ATB3	0.911				
ATB4	0.852				
EI1		0.941			
EI2		0.958			
EI3		0.944			
EI4		0.960			
GRI1			0.892		
GRI2			0.929		

GRI3			0.950		
GRI4			0.871		
GRI5			0.923		
GRI6			0.922		
PBC1				0.878	
PBC2				0.824	
PBC3				0.794	
PBC4				0.804	
SSN1					0.817
SSN2					0.841
SSN3					0.481
SSN4					0.419

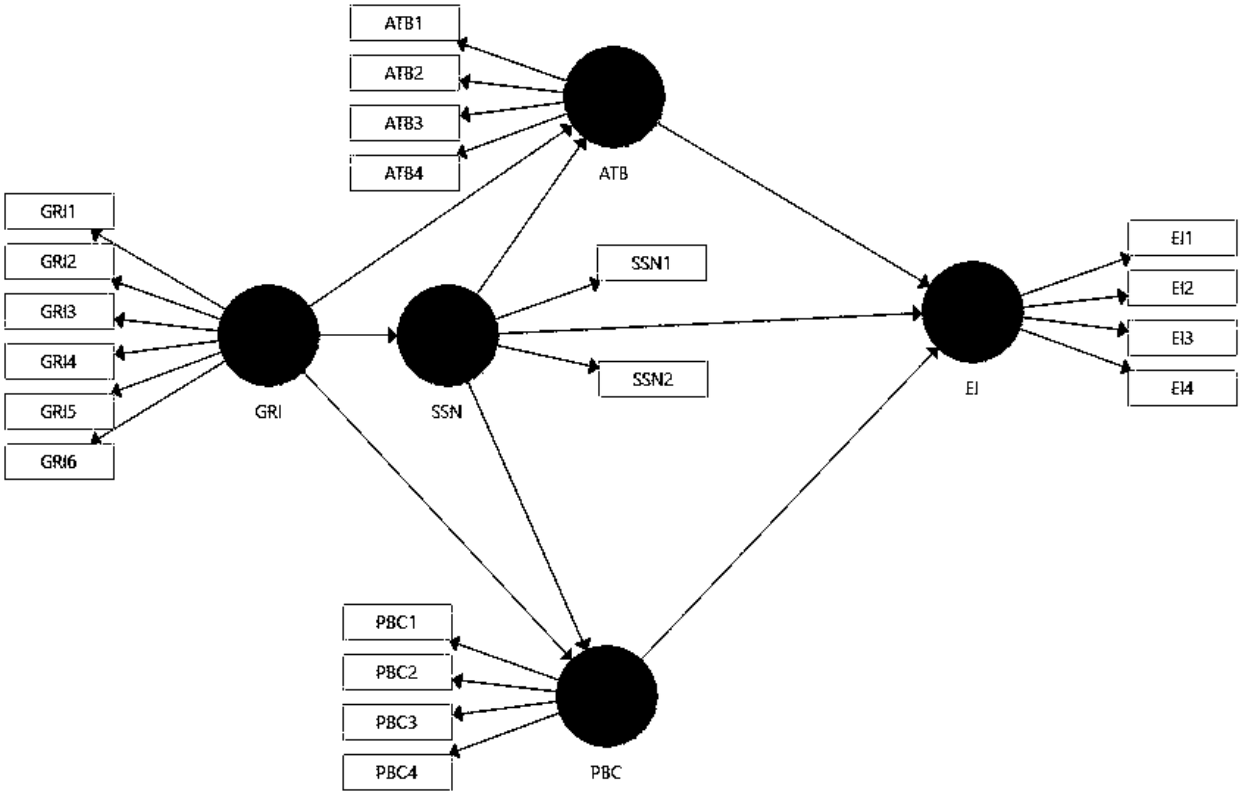

Figure 1.2: Model with the indicator variables (Based on Bazan, Shaikh et al., 2019)

2) Internal consistency reliability indicates the extent to which the items of a specific construct are capable of measuring the various aspects of that same construct or characteristic (Revicki, 2014). For thoroughness and completeness, this study reports three metrics of internal consistency

reliability: A liberal measure that is the composite reliability, a conservative measure which is Cronbach's alpha, and the "true" measure (ρ_A) of reliability.

Composite reliability: Assessment of the internal consistency reliability is done using Jöreskog's (1971) composite reliability (Hair et al., 2019). Higher levels of reliability are generally indicated by higher values (Hair et al., 2019). If the reliability value lies between 0.60 and 0.70, then they can be accepted in exploratory research (Hair et al., 2019). Reliability values ranging between 0.70 and 0.90 can be considered from being satisfactory to good (Hair et al., 2019). Those values that are 0.95 and above are considered to be problematic, as they give an indication of the items being redundant thus leading to the reduction of construct validity (Hair et al., 2019). The minimum composite reliability value in the model corresponds to SSN (0.870) while two composite reliability values marginally exceeded the higher bound, EI (0.974) and GRI (0.969). It was decided to keep all the indicators in both constructs EI (4) and GRI (6), since they belong to a battery of validated and internationally accepted and tested scale items that have been used in previous studies and do not reduce the construct validity. Also, Jöreskog's (1971) composite reliability has a tendency to produce relatively higher reliability values (Hair et al., 2019).

Cronbach' s Alpha: Cronbach's alpha values which are greater than 0.70 are generally acceptable (Hair et al., 2019; Hair, Hult et al., 2017). The minimum Cronbach's alpha value in the model corresponds to SSN (0.701). Cronbach's alpha is considered to be a conservative measure of reliability and it results in reliability values which are relatively lower (Hair et al., 2019).

ρ_A (rho_A): It is reasonable to consider as well as report both composite reliability and Cronbach's alpha criteria along with ρ_A as the true reliability that is typically found between the two extreme

values (Dijkstra & Henseler, 2015). The minimum ρ_A value in the model corresponds to SSN (0.707). Table 1.2 below represents the above-mentioned values.

Table 1.2: Internal Consistency Reliability Results

	Cronbach's Alpha	rho_A	Composite Reliability
ATB	0.918	0.920	0.942
EI	0.964	0.965	0.974
GRI	0.961	0.964	0.969
PBC	0.845	0.867	0.895
SSN	0.701	0.707	0.870

Bootstrap confidence intervals can also be used for testing whether the construct reliability is significantly greater or lesser than the minimum and maximum thresholds that have been recommended and percentile method should generally be used for obtaining the bootstrap confidence intervals (Aguirre-Urreta & Rönkkö, 2018). All bootstrapping in this study used the following settings: 5,000 bootstrap samples, bias-corrected and accelerated bootstrap, two-tailed testing, and 5% significance level. Assuming 95% confidence interval, this study found that all reliability values are significant and within the recommended range. Table 1.3 below represents the bootstrap confidence interval for testing the reliability of the constructs of the study.

Table 1.3: Internal Consistency Reliability Results (Bootstrap)

	Original Sample	Sample Mean	2.50%	97.50%
ATB	0.942	0.942	0.926	0.955
EI	0.974	0.974	0.967	0.980
GRI	0.969	0.968	0.959	0.976
PBC	0.895	0.895	0.863	0.921
SSN	0.870	0.869	0.820	0.910

3) Convergent validity is referred to as the extent to which a particular construct converges for explaining variance of its items (Hair et al., 2019). This study used the average variance extracted (AVE) for evaluation of the convergent validity of the reflective constructs. AVE that includes a value which is 0.50 or greater is acceptable (Hair et al., 2019). This means that the particular construct is able to provide explanation for at least 50 per cent of variance in its several items (Hair et al., 2019). The minimum AVE value in the model corresponds to PBC (0.682). Table 1.4 below represents the convergent validity results (AVE values).

Table 1.4: Convergent Validity (AVE results)

	AVE
ATB	0.802
EI	0.904
GRI	0.837
PBC	0.682
SSN	0.769

4) Discriminant validity refers to the extent to which a particular construct is distinct empirically from all the other constructs existing in the structural model (Hair et al., 2019). For thoroughness and completeness, this study reports three metrics of discriminant validity: cross-loadings, the Fornell-Larcker criterion, and the Heterotrait-monotrait ratio.

Cross-loadings: These are typically the primary approach that is used for assessment of the discriminant validity of the indicators (Hair, Hult, et al., 2017). A particular indicator's outer loading on the associated construct must be greater than its correlations on the other constructs (Hair et al., 2019; Hair, Hult, et al., 2017). Comparison of each indicator's outer loading with its correlations with other constructs reveals that there are no cross-loadings in the model.

Fornell-Larcker criterion: According to the requirements of this method, the shared variance (the squared inter-construct correlation) for all the constructs in the model must not be greater than their AVE values (Fornell & Larcker, 1981). The AVE value for each construct in the model of this study is larger than the squared inter-construct correlation between this construct and the other constructs in the model. Recent research has indicated that the Fornell-Larcker criterion doesn't perform well if the indicator loadings on a particular construct tend to differ only slightly (for example, all the indicator loadings are between the values of 0.65 and 0.85) (Henseler et al., 2015). Table 1.5 below represents the Fornell-Larcker criterion results.

Table 1.5: Fornell-Larcker criterion results

	ATB	EI	GRI	PBC	SSN
ATB	0.896				
EI	0.838	0.951			
GRI	-0.149	-0.258	0.915		
PBC	0.717	0.764	-0.215	0.826	
SSN	0.650	0.554	-0.223	0.553	0.877

Heterotrait-monotrait (HTMT) ratio: This ratio was proposed by Henseler et al. (2015). When the HTMT values are high, it indicates problems with discriminant validity (Hair et al., 2019). A threshold value of 0.90 to be considered for those structural models that have conceptually very similar constructs and in this case, an HTMT value above 0.90 indicates the absence of discriminant validity (Hair et al., 2019). In case of models with conceptually more distinct constructs, a threshold value which is lower and more conservative, is considered like 0.85 (Hair et al., 2019). Two constructs in the model of this study, ATB and EI, are conceptually very similar, i.e., they indicate the desirability as well as the attractiveness of indulging in entrepreneurial behavior. The largest HTMT value in the model corresponds to ATB → EI (0.888). Also, this study used bootstrap confidence intervals for testing whether the HTMT values are significant and

lower than 0.90, as defined based on the context of this study (Franke & Sarstedt, 2019). The tables (table 1.6 and table 1.7) representing the HTMT results have been shown below.

Table 1.6: HTMT Results

	ATB	EI	GRI	PBC	SSN
ATB					
EI	0.888				
GRI	0.156	0.267			
PBC	0.802	0.828	0.225		
SSN	0.810	0.673	0.265	0.708	

Table 1.7: HTMT Results (Bootstrap)

	Original Sample	Sample Mean	2.50%	97.50%
EI -> ATB	0.888	0.888	0.846	0.926
GRI -> ATB	0.156	0.167	0.060	0.328
GRI -> EI	0.267	0.266	0.109	0.425
PBC -> ATB	0.802	0.803	0.719	0.877
PBC -> EI	0.828	0.828	0.748	0.898
PBC -> GRI	0.225	0.247	0.131	0.395
SSN -> ATB	0.810	0.810	0.686	0.931
SSN -> EI	0.673	0.674	0.534	0.801
SSN -> GRI	0.265	0.276	0.120	0.454
SSN -> PBC	0.708	0.710	0.561	0.849

In the study, all the measurement model evaluation criteria have been met, providing support for the measures' reliability and validity. Table 1.8 shown below summarizes the results of the reflective measurement model assessment.

Table 1.8: Reflective measurement model assessment results

Latent Variable	Indicators	Convergent Validity			Internal Consistency Reliability		Discriminant Validity
		Loadings	Indicator Reliability	AVE	Composite Reliability	Cronbach's Alpha	HTMT confidence interval <>1
		>0.70	>0.50	>0.50	>0.60	>0.70	
ATB	ATB1	0.912	0.832	0.802	0.942	0.918	Yes
	ATB2	0.906	0.821				
	ATB3	0.911	0.830				
	ATB4	0.852	0.726				
EI	EI1	0.941	0.885	0.904	0.974	0.964	Yes
	EI2	0.958	0.918				
	EI3	0.944	0.891				
	EI4	0.960	0.922				
GRI	GRI1	0.892	0.796	0.837	0.969	0.961	Yes
	GRI2	0.929	0.863				
	GRI3	0.950	0.903				
	GRI4	0.871	0.759				
	GRI5	0.923	0.852				

	GRI6	0.922	0.850				
PBC	PBC1	0.878	0.771	0.682	0.895	0.845	Yes
	PBC2	0.824	0.679				
	PBC3	0.794	0.630				
	PBC4	0.805	0.648				
SSN	SSN1	0.817	0.667	0.769	0.870	0.701	Yes
	SSN2	0.841	0.707				

Assessment of the structural model:

Once the measurement model has been able to meet the criteria, the next step involves assessment of the structural model (Hair et al., 2019). For the structural model, the following were evaluated 1) collinearity, 2) explained variance, 3) predictive relevance, and 4) relevance, size, and statistical significance of the various structural path coefficients.

1) Collinearity was examined based on the variance inflation factor (VIF) before assessing the structural relationships, to ensure that the regression results are not biased (Hair et al., 2019). VIF values that are above 5 indicate probable issues of collinearity among the predictor constructs (Mason & Perreault, 1991; Becker et al., 2015). Ideally, a VIF value closer to 3 and lower should be considered (Hair et al., 2019). Collinearity problems may also occur at VIF values which are between 3 and 5 (Mason & Perreault, 1991; Becker et al., 2015). The largest VIF value in the model corresponds to ATB → EI (2.542). Table 1.9 shown below represents the collinearity values.

Table 1.9: Collinearity results

	ATB	EI	GRI	PBC	SSN
ATB		2.542			
EI					
GRI	1.053			1.053	1.000
PBC		2.115			
SSN	1.053	1.779		1.053	

2) Explained variance is the proportion of the variance existing in the endogenous constructs which can be explained from the constructs that are exogenous (Hair et al., 2019). For measuring the explained variance for each endogenous construct, this study used the coefficient of determination (R^2) and the effect size (f^2).

Coefficient of determination (R^2): The value of R^2 ranges from 0 to 1 and higher values indicate a higher explanatory power (Hair et al., 2019). For guidance, R^2 value of 0.25 is considered to be weak, whereas R^2 value of 0.50 is taken to be moderate and R^2 value of 0.75 is considered as substantial (Hair et al., 2019). The R^2 value for the EI construct (0.757) is substantial while the R^2 values for the ATB construct (0.422) and the PBC construct (0.315) are both moderate. The R^2 value for the SSN construct (0.050) is negligible. Table 1.10 shown below represents the R^2 values of the study.

Table 1.10: R^2 results

	Original Sample	Sample Mean	Standard Deviation	T Statistics	P Values
ATB	0.422	0.429	0.062	6.868	0.000
EI	0.757	0.762	0.027	28.067	0.000
PBC	0.315	0.325	0.061	5.132	0.000
SSN	0.050	0.058	0.037	1.364	0.173

Effect size (f^2): For explaining the presence of full or partial mediation, this study also assessed how removing a particular predictor construct can have an impact on the R^2 value of an endogenous construct and this metric is referred to as the f^2 effect size (Hair et al., 2019). As a guideline, values which are greater than 0.35 explain an f^2 effect size which is large whereas values above 0.15 represent medium f^2 effect size and values greater than 0.02 represent a small f^2 effect size (Hair et al., 2019). The removal of the SSN construct in the model has a large effect on the ATB construct (0.693) and the PBC construct (0.391). The removal of the ATB construct has a large effect on the EI construct (0.614) while the removal of the PBC construct has a medium effect on the EI construct (0.227). Table 1.11 shown below represents the f^2 values.

Table 1.11: f^2 results

	ATB	EI	GRI	PBC	SSN
ATB		0.614			
EI					
GRI	0.000			0.013	0.053
PBC		0.227			
SSN	0.693	0.003		0.391	

3) Predictive relevance measures out-of-sample predictive power of a model, that is to predict data which has not been used in the estimation of the model (Hair et al., 2019). For measuring the predictive relevance for each of the endogenous construct, this study calculated Stone-Geisser's Q^2 and the effect size (q^2) by using the procedure of blindfolding with an omission distance $D = 7$ (Geisser, 1974; Stone, 1974).

Stone-Geisser's Q^2: Q^2 values that are larger than 0 indicate that the model has predictive relevance for a particular endogenous construct (Hair et al., 2019). As a guideline, Q^2 values which are

greater than 0.50 represent large predictive relevance of the path model, whereas values above 0.25 represent medium predictive relevance of the path model and finally values that are greater than 0 represent small predictive relevance of the path model (Hair et al., 2019). The Q^2 value in the model for the EI construct (0.676) is large while the Q^2 values for the ATB construct (0.332) and the PBC construct (0.203) are both medium. The Q^2 value for the SSN construct (0.035) is small. Note: Q^2 combines the aspects of in-sample explanatory power and out-of-sample prediction and cannot be considered as a reliable measure of out-of-sample prediction (Hair et al., 2019).

Table 1.12 shown below represents the values of Q^2

Table 1.12: Q Square results

		SSO	SSE	Q^2
ATB		596.000	397.916	0.332
EI		596.000	192.928	0.676
GRI		894.000	894.000	
PBC		596.000	475.161	0.203
SSN		298.000	287.695	0.035

Effect size (q^2): Similar to the f^2 effect sizes, this study also assessed how removing a particular predictor construct has an impact on the Q^2 value of an endogenous construct. The removal of the SSN construct has a medium effect on the ATB construct (0.321) and the PBC construct (0.183). The removal of the ATB construct has a medium effect on the EI construct (0.293) while the removal of the PBC construct has a large effect on the EI construct (0.515). Table 1.13 shown below represents the values of q^2

Table 1.13: q^2 results

	ATB	EI	GRI	PBC	SSN
ATB		0.293		0.000	0.000
EI					
GRI	-0.003	0.000		0.001	-0.209
PBC	0.000	0.515			0.000
SSN	0.321	-0.016		0.183	

Few researchers argue that the R^2 statistic may only be interpreted as a measure of the in-sample explanatory power of the model and does not indicate the out-of-sample predictive power of the model (Hair et al., 2019). Thus, in this study PLSpredict algorithm was used for the assessment of the model's out-of-sample prediction power (Hair et al., 2019). PLSpredict involves estimation of the model on a training sample and evaluation of its predictive performance on data other than the training sample through division of the sample into *k* subgroups (Hair et al., 2019). In order to ensure that the sample size of each subgroup is large enough, this study used $k = 4$ and ten repetitions. The interpretation of PLSpredict results focused on the key endogenous construct (EI) of the model. Comparing the model's performance against the most naïve benchmark using a linear regression model (LM) show that the $Q^2_{predict}$ statistic for each indicator of the EI construct is larger than zero ($Q^2_{predict} > 0$). Also, comparison of the root mean squared error (RMSE) value with the LM value of each indicator yields higher prediction errors in terms of RMSE for none of the indicators. Thus, the model seems to have high out-of-sample predictive power.

4) This study ran bootstrapping for assessing the statistical significance of the path coefficients and evaluating their values and these values are typically in the range between -1 and +1 (Hair et al., 2019). Similarly, this study calculated the total indirect effect and the specific indirect effect of each exogenous construct in the path model (Hair et al., 2019). Table 1.14 show the bootstrapping report with the path coefficients, total indirect effects, and specific indirect effects

including bootstrap mean values, standard deviation, *p* values, and 95% confidence interval bias-corrected. The results of the path coefficients, indirect effects and total effects have been represented using table 1.14 and the models (figure 1.3 and figure 1.4) as shown below.

Table 1.14: Significance testing results of the structural model

Path Coefficients					
Path	Original Sample	Sample Mean	STD	*p* Value	95% Confidence Interval
H1: ATB → EI	0.616	0.613	0.066	0.000	[0.481, 0.736]
H2: SSN → EI	–0.035	–0.034	0.055	0.637	[–0.142, 0.070]
H3: PBC → EI	0.341	0.344	0.065	0.000	[0.216, 0.470]
H4: SSN → ATB	0.649	0.648	0.052	0.000	[0.540, 0.742]
H5: SSN → PBC	0.531	0.532	0.061	0.000	[0.406, 0.648]
H6: GRI → ATB	–0.004	–0.006	0.064	0.952	[–0.134, 0.121]
H7: GRI → SSN	–0.223	–0.230	0.081	0.006	[–0.385, –0.068]
H8: GRI → PBC	–0.096	–0.100	0.071	0.178	[–0.230, 0.041]
Total Indirect effects					
Path	Original Sample	Sample Mean	STD	*p* Value	95% Confidence Interval
SSN → EI	0.581	0.580	0.055	0.000	[0.469, 0.688]
GRI → ATB	–0.145	–0.149	0.054	0.007	[–0.253, –0.046]
GRI → PBC	–0.119	–0.122	0.046	0.010	[–0.215, –0.036]
GRI → EI	–0.157	–0.165	0.072	0.030	[–0.300, –0.023]
Specific Indirect Effects					
Path	Original Sample	Sample Mean	STD	*p* Value	95% Confidence Interval
GRI → SSN → ATB	–0.145	–0.149	0.054	0.007	[–0.253, –0.046]

H11: GRI → ATB → EI	–0.002	–0.004	0.040	0.952	[–0.087, 0.072]
H9: SSN → ATB → EI	0.400	0.397	0.052	0.000	[0.299, 0.498]
GRI → SSN → ATB → EI	–0.089	–0.091	0.034	0.009	[–0.159, –0.027]
H13: GRI → PBC → EI	–0.033	–0.035	0.027	0.222	[–0.09, 0.013]
H10: SSN → PBC → EI	0.181	0.183	0.041	0.000	[0.111, 0.267]
GRI → SSN → PBC → EI	–0.041	–0.042	0.018	0.025	[–0.081, –0.012]
H12: GRI → SSN → EI	0.008	0.008	0.014	0.568	[–0.017, 0.037]
GRI → SSN → PBC	–0.119	–0.122	0.046	0.010	[–0.215, –0.036]
GRI → SSN → ATB	–0.145	–0.149	0.054	0.007	[–0.253, –0.046]

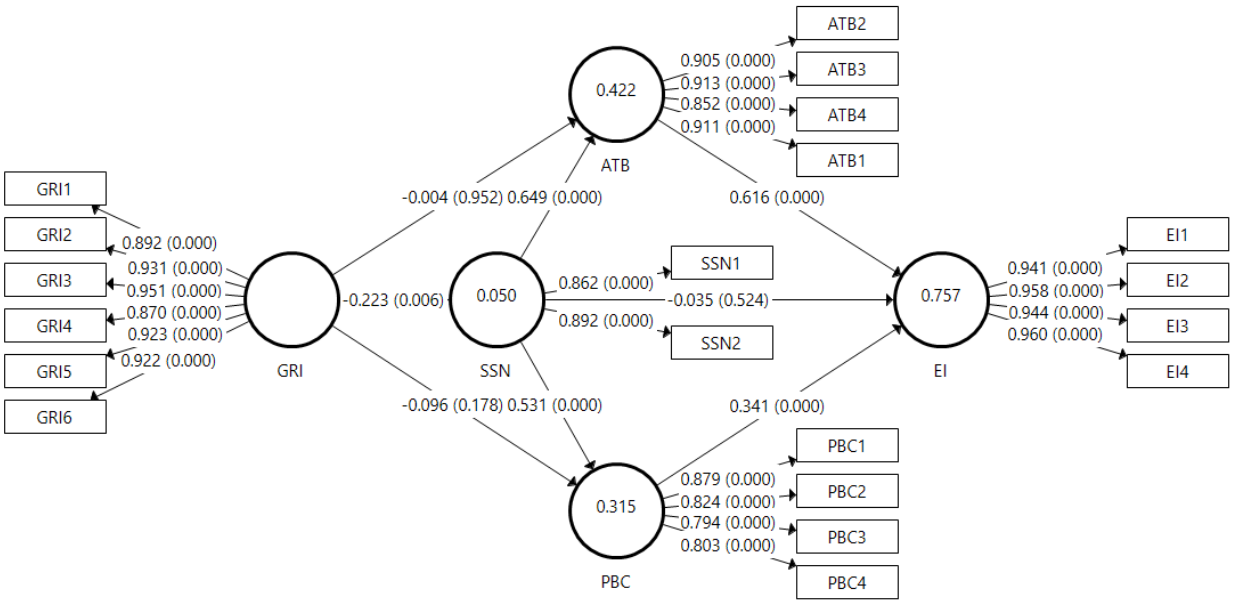

Figure 1.3: Model with the results

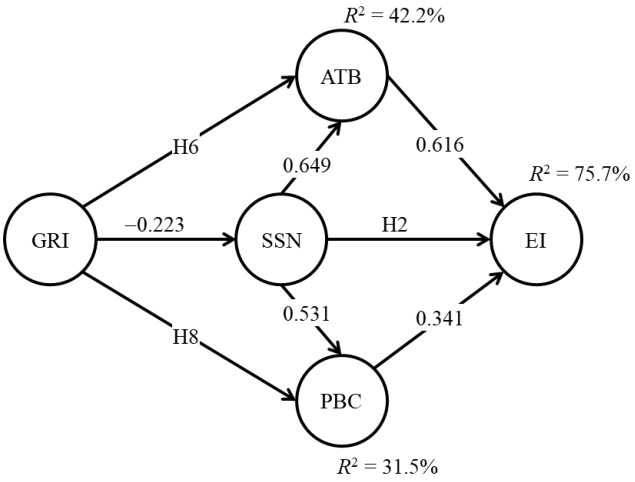

Figure 1.4: Structural model results with statistically significant relationships

Additionally, this study used the total effects of the model as input for conducting importance-performance map analysis (IPMA) to add a dimension to the analysis by considering the average values of the latent variable scores (Hair et al., 2019). The IPMA compares the total effects of the structural model on a particular target construct with the average latent variable scores of this particular construct's predecessors (Hair et al., 2019). Prior to conducting the IPMA, this study checked the three requirements for undertaking the analysis: 1) Indicators with a neutral category and balanced category (rescaled −3, +3 Likert scale), 2), Indicator coding having the same scale direction, and 3) Outer weights being all positive (Hair, Hult, et al., 2017). Figure 1.5 below shows the IPMA for the direct predecessors (more proximal antecedents) ATB, SSN, and PBC of the target construct EI.

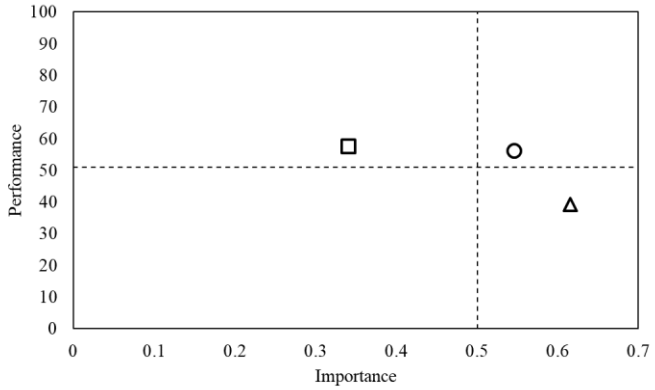

Figure 1.5: Standardized importance-performance map of the target construct EI

Results

From the PLS SEM results in the table (table 1.14) and in the models (figure 1.3 and figure 1.4), we can summarize about the path coefficients, significant relationships, and the hypotheses. Hypotheses H1, H3, H4, H5, H7, H9 and H10 are statistically significant and are thus supported while hypotheses H2, H6, H8, H11, H12 and H13 are not statistically significant and are thus not supported. Statistically significant path coefficients which are close to +1 represent strong positive relationships (and vice versa for negative values).

Results from the PLS-SEM show that the four precursors of EI, i.e., ATB, PBC, SSN and indirectly GRI, explain 76% of the variance in EI of the students. Out of the three direct paths associated with the EI of students, two of them have statistical significance, which are ATB → EI and PBC → EI. Hypothesis 1 which states that ATB influences EI shows a statistically significant relationship via the bootstrapping procedure. Similarly, hypothesis 3 which states that PBC influences EI also shows a statistically significant relationship through the bootstrapping procedure. Further, the results of this study and those of some other studies show that a students'

perception of the support and approval of important reference people are not directly relevant to their intentions of starting a new entrepreneurial venture (Bazan, Shaikh, et al., 2019). Thus, hypothesis 2 which states that SSN has a positive influence on EI does not show a statistically significant relationship through the bootstrapping procedure. Both hypotheses 4 and 5 which state that SSN has a positive influence on ATB and SSN has a positive influence on PBC respectively represent statistically significant relationships via bootstrapping. Thus, even though SSN does not have a direct association with EI, it has a a strong statistically significant direct association with both PBC and ATB. Out of the two direct influencers of EI, ATB seems to be the most influential (0.616) followed by PBC which has about half that effect (0.341). Out of the two direct influencers of ATB, i.e., GRI and SSN, only SSN is statistically significant, and it exerts a strong influence (0.649). Out of the two direct influencers of PBC, i.e., GRI and SSN, only SSN is statistically significant, and it has a substantial effect (0.531). Hypothesis 6 which states that GRI is positively associated with ATB does not represent a statistically significant relationship as shown through the bootstrapping procedure. Similarly, hypothesis 8 which states that GRI is positively associated with PBC also does not represent a statistically significant relationship as shown through the bootstrapping procedure. Hypothesis 7 that states that GRI is positively associated with SSN represents a statistically significant relationship as shown via the bootstrapping procedure.

Hypothesis 9 which states that ATB mediates the relationship between SSN and EI and hypothesis 10 which states that PBC mediates the relationship between SSN and EI both represent a statistically significant relationship as shown through the bootstrapping procedure. Hypothesis 11 which states that ATB mediates the relationship between GRI and EI, hypothesis 12 which states that SSN mediates the relationship between GRI and EI and hypothesis 13 which states that PBC

mediates the relationship between GRI and EI are all not statistically significant as shown through bootstrapping procedure.

However, gender role identity has an indirect effect on entrepreneurial intentions through subjective social norms and attitude towards entrepreneurial behavior (GRI -> SSN -> ATB -> EI). This represents a statistically significant relationship as shown through the bootstrapping procedure. Also, gender role identity has an indirect effect on entrepreneurial intentions through subjective social norms and perceived behavioral control towards entrepreneurship (GRI -> SSN -> PBC -> EI). This also represents a statistically significant relationship as shown through the bootstrapping procedure.

Even though a career as an entrepreneur does not seem to be a very attractive proposition for the sample population (ATB: mean = 3.343, SE = 0.144), their perceived capability to start as well as run a successful business (PBC: mean = 4.448, SE = 0.147) appears to translate into a modest but above-average intention to start a new entrepreneurial venture (EI: mean = 4.307, SE = 0.166) Further, in line with other studies, results of this study show that the opinion of important reference individuals have a positive association with the ATB and PBC of starting a new entrepreneurial venture (Bazan, Shaikh, et al., 2019). Consequently, if students decide to start a new entrepreneurial venture, important reference individuals could eventually hinder such prospect (SSN: mean = 3.512, SE = 0.145). Between the two, ATB seems to be the construct that is most influenced by the important reference people. In general, this seems to be making sense, considering that the opinion of others could enhance a student's outlook towards engaging in entrepreneurship. SSN could only improve their PBC to the extent in which these important reference individuals can make a contribution to the student's capacity to start a new

entrepreneurial venture (for example mentoring, financial support). Figure 1.6 representing the mean and standard error (SE) of the mean for the five concepts of interest have been shown below.

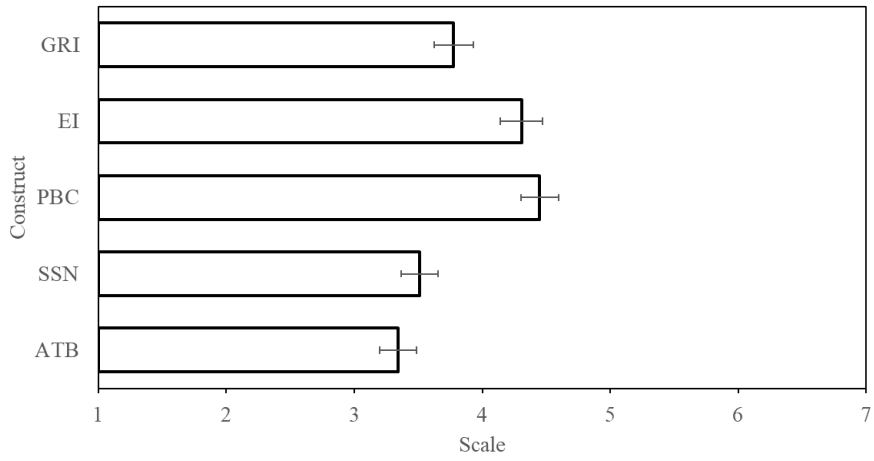

Figure 1.6: Mean and standard error (SE) of the mean for the five concepts of interest

Figure 1.8 below shows a histogram distribution of the average responses to the GRI indicators The GRI of students is slightly skewed towards the male characteristics (GRI: mean = 3.777, SE = 0.154), even though students identify themselves with male and female characteristics that range from very masculine to very feminine. This self-identification seems to influence EI of students irrespective of their biological sex through its statistically significant effect on the SSN construct (–0.223). This effect appears to be negative given that the GRI indicators range from 1 = very masculine to 7 = very feminine. In other words, as students identify themselves as more feminine, the more negative is the effect of their GRI on SSN (i.e., the support and opinion of important referent individuals). In turn, this self-identification has a statistically significant negative total indirect effect on EI of students GRI → EI (–0.157). More specifically, GRI has a statistically significant total indirect effect on EI through both paths GRI → SSN → ATB → EI (–0.089) and

GRI → SSN → PBC → EI (–0.041). As expected, GRI exerts a larger statistically significant negative indirect effect on the ATB construct GRI → SNN → ATB (–0.145) than on the PBC construct GRI → SNN → PBC (–0.119).

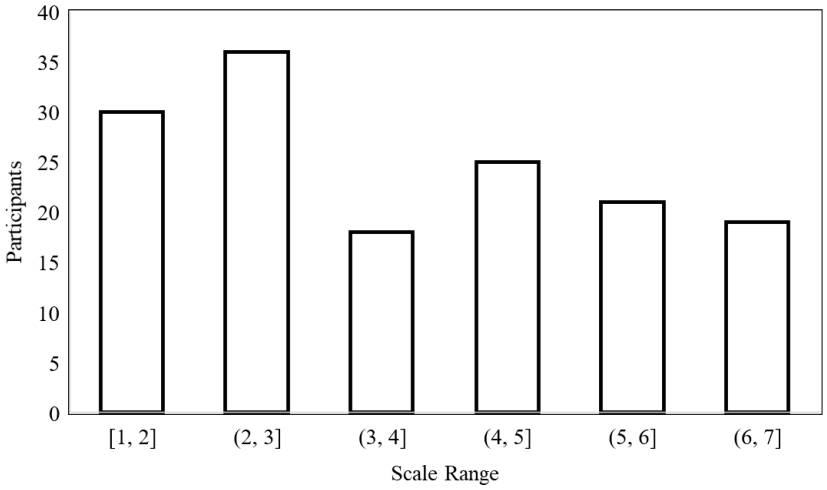

Figure 1.7: Histogram distribution of the participant's average responses to the GRI indicators

Considering the large effect of ATB on EI of students, it is worth noting in the IPMA in figure 1.5 that ATB has an above-average importance while a below-average performance on the target construct EI. A closer look at the IPMA at the indicator level in figure 1.9 below revealed that indicators ATB3: "Among various career options, I would rather be an entrepreneur" and ATB1: "A career as an entrepreneur is attractive for me" have above-average importance while average and below-average performance, respectively. Indicators ATB2: "Being an entrepreneur would give me great satisfaction" and ATB4: "Being an entrepreneur implies more advantages than disadvantages to me" have below-average importance while above-average and average performance, respectively. This analysis can provide information to the universities for possible

intervention in order to make the prospects of an entrepreneurial career more desirable and attractive.

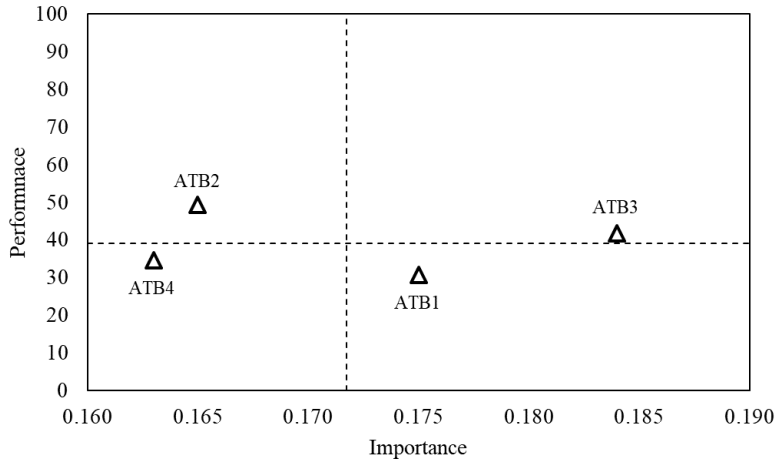

Figure 1.8: Standardized importance-performance map of the target construct EI at the indicator level for the ATB construct.

Discussion

According to the results of the study, social pressures and normative beliefs can be associated with the prospective entrepreneur's perception of whether engaging in entrepreneurial activities will be beneficial or not. It can also be associated with his or her perception of whether there will be any obstacles for him or her in the entrepreneurial path or not. All this in turn can be associated with the entrepreneurial intent of the prospective entrepreneur. Also, according to the findings of the study, gender role identity can be associated with the social pressures and normative beliefs about entrepreneurship such that higher level of identification with femininity is associated with lower subjective social norms. These social pressures along with the normative beliefs (about entrepreneurship) of important people in the prospective entrepreneur's life, in turn are associated with the perceptions of the prospective entrepreneur about whether entrepreneurial ventures will

be favorable or unfavorable for him or her. These social pressures and normative beliefs (about entrepreneurship) are also associated with the perceptions of the prospective entrepreneur about the ease or difficulty with which he or she can perform the entrepreneurial activities. All this in turn can be associated with the entrepreneurial intent of the prospective entrepreneur.

Overall, this study contributes effectively to both practice and theory. In terms of contribution to the literature, to the best of my knowledge, it is among the first studies to explore the non-binary construct of gender role identity and entrepreneurial intentions through the theory of planned behavior antecedents of intention. Very few studies have investigated the association between gender role identity and entrepreneurial intentions creating a gap in the literature. This study has tried to address this research gap and thus contribute to theory. Also, the results of this study can be used as a foundation based on which further extensive studies can be conducted and the outcomes of those studies can be effectively implemented to improve the entrepreneurial programs and initiatives. This can also help in growing and enriching the literature on GRI and EI.

In terms of contribution to practice, the key finding of the study which shows that subjective social norms play a critical role in the relationship between gender role identity and entrepreneurial intentions through both attitude towards behavior and perceived behavior control, will enable universities, entrepreneurial policymakers and educators to develop their entrepreneurial programs focusing on subjective social norms as an important element. Furthermore, the results of the study also focus on how gender role identity plays an important role in understanding entrepreneurial intentions through its association with the three facets of the theory of planned behavior (ATB, PBC and SSN) where it was found that gender role identity influences entrepreneurial intentions through its indirect effect on subjective social norms and attitude towards behavior and also through its indirect effect on subjective social norms and perceived behavioral control. Thus,

elements of gender role identity (masculinity and femininity) can be effectively incorporated into entrepreneurial programs. Entrepreneurial policies and programs that focus on both masculinity as well as femininity being aligned with entrepreneurship can be designed which can help in the development of perceptions of greater congruency between feminine traits and entrepreneurial activities in the society. This in turn will motivate the feminine individuals to develop their entrepreneurial intent. Overall, through these entrepreneurial programs and initiatives, more people can be motivated to engage in entrepreneurship.

Limitations and Future Research Directions

This study has certain limitations which have been discussed below-

First, cross sectional data was collected for this study. In cross sectional studies, data is both collected and analyzed at a single point of time and all the variables of the study are measured at the same span of time (Ployhart & Vandenberg, 2010). Thus, this type of studies can be time saving (Sedgwick, 2014; Ployhart & Vandenberg, 2010). Using a method which saves time and yields immediate results can be beneficial as the outcomes can be immediately implemented to bring improvements. The results of this study showed key findings in the relationship between GRI, SSN, ATB, PBC and EI and these outcomes can be immediately implemented in the universities across the globe. However, cross sectional research may tend to provide a lesser understanding of how a particular variable can change over a span of time (Ployhart & Vandenberg, 2010). The study can be further enriched by using longitudinal data which can measure the various variables at repeated intervals and provide a greater understanding of how a specific variable can change over a span of time (Ployhart & Vandenberg, 2010).

Second, this study being a cross sectional study may face the problem of common method bias but appropriate measures were undertaken to reduce it (Podsakoff et al., 2012). “In the years since, a number of researchers have discussed a related problem—the biasing effects that measuring two or more constructs with the same method may have on estimates of the relationships between them” (Podsakoff et al., 2012, p.540). The techniques used to overcome common method bias in this study include- using internationally established scales with items that were not ambiguous, and conducting collinearity test in PLS- SEM which showed VIF values lower than 3.3 thus indicating low common method bias (Podsakoff et al., 2012; Kock, 2015).

Third, the research participants of this study were limited to only students since data were collected from a university only. Investigating and understanding student entrepreneurship is important since at the student stage of life, interests and intentions towards career choices emerge and thus students possess the potential to become future business owners and entrepreneurs (Gallant et al., 2010). However, there could be a further interesting contribution by future researchers if they can collect data from full time working professionals who are completely financially independent. Future researchers can study about the gender role identity of such financially independent men and women who are working professionals. Being financially independent can have an impact on how one identifies oneself in terms of gender roles and entrepreneurial intentions. Also, the study was restricted to Memorial University of Newfoundland situated in St John’s, Canada. The research participants were the students of this university. While this could limit the generalizability of this study, it also allowed for controlling of various extraneous factors that could differ across universities, locations and geographic regions (Pourhoseingholi et al., 2012; Polit & Beck, 2010). Hence the decision was to focus and limit this research to Memorial University and to the country

Canada. The results of this study may not be generalizable to other countries or geographical regions because of social, economic, cultural and institutional differences (Polit & Beck, 2010).

The study can be further expanded if the future researchers can collect data from a broader sample of students from more universities across Canada as well as across the globe. An interesting comparative study can also be conducted by comparing the data from universities across the world. The researchers can study how social and cultural differences across the globe can have an impact on gender role identity and entrepreneurial intentions. Thus, future research can examine and investigate as to what extent the results and findings about GRI and EI can be generalized to other contexts, regions, locations and nations.

Fourth, this research focused on the role of the constructs of theory of planned behavior for understanding the relationship between gender role identity and entrepreneurial intentions. TPB constructs (ATB, PBC and SSN) have predicted entrepreneurial intentions in the past studies and hence it was used for this study (Bazan, Shaikh et al., 2019; Obschonka et al., 2012; Aeeni et al., 2015). However, future research can investigate other factors beyond those that have been included by the theory of planned behavior such as creativity, personality traits and entrepreneurship education for examining entrepreneurial intentions and gender role identity.

Finally, this study focused on predicting the intentions of starting a new entrepreneurial venture. According to Ojewumi et al. (2018), **e**ntrepreneurial intention is generally considered to be a reliable predictor of entrepreneurial activity, actions, and behavior. Future research can focus on GRI and other aspects of entrepreneurship such as a study on how gender role identity of existing entrepreneurs have an impact on their intentions of entrepreneurial diversification and expansion.

Since the results of the study found SSN to be a key factor in the relationships among GRI, ATB, PBC and EI, future researchers can also expand this study by conducting an extensive study on SSN and GRI. Future research work can focus on exploring gender role identity and entrepreneurial intentions extensively through various facets of subjective social norms such as the entrepreneurial ecosystem of universities, entrepreneurial ecosystem of high schools and entrepreneurial support provided by teachers and supervisors.

Conclusion

This study provides an in depth understanding of the association between gender role identity and the TPB precursors of entrepreneurial intentions of university students. The literature review showed that there are numerous studies that have been conducted in the past to measure gender differences in EI of students (Example- Haus et al., 2013; Yordanova & Tarrazon, 2010; Bagheri & Pihie, 2014). However, most of these studies measure gender differences by incorporating a binary construct of gender into their EI models to investigate its effect through moderation, mediation or multi-group analyses (Example- Haus et al., 2013; Yordanova & Tarrazon, 2010; Bagheri & Pihie, 2014). The binary (example male = 0, female = 1) single-item construct may not provide a deeper understanding of entrepreneurial intentions as individuals (male/female) may tend to embrace different levels of masculinity and femininity into their personalities (Fischer & Arnold, 1994; Zampetakis et al., 2016). Unlike most of these studies in the past which focused on the binary construct of gender, this study measured gender as a continuum (i.e. GRI which is non-binary).

Very few studies investigate the relationship between gender role identity and EI of students. Based on the past research by others, in this study, a model was developed for investigating the association of a student's perceived gender (on a scale from very masculine to very feminine) with the antecedents of EI. Analysis of the data showed that PBC and ATB fully mediate the effect of SSN on EI of the students. Furthermore, GRI has an effect on EI of students through SSN and ATB and also through SSN and PBC. The effect of GRI is such that it may negatively affect the EI of students if they identify themselves with more feminine characteristics and traits, irrespective of their biological sex.

Findings demonstrate that subjective social norms play a key role in the relationship between gender role identity, attitude towards behavior, perceived behavioral control and entrepreneurial intentions. Thus, MUN, other universities, educators and policy makers can incorporate subjective social norms when developing their entrepreneurial courses, initiatives, policies and training programs. Programs and policies developed by universities and policy makers for promoting entrepreneurial activities can give equal weight to both masculinity and femininity and can highlight that both masculine as well as feminine traits are congruent with entrepreneurship. This in turn will lead to development of perceptions of greater alignment between femininity and entrepreneurial attributes. Such perceptions can lead to greater entrepreneurial support being provided by financial institutions, media, advertising agencies, families, peers, and friends to individuals identifying themselves with femininity. This will ultimately motivate such individuals to develop their entrepreneurial intent. Overall, by exploring and understanding the various factors that may motivate entrepreneurial activities among individuals, policymakers and educators can design entrepreneurial programs in such a manner so that entrepreneurship can be encouraged for all individuals in society.

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Appendix 1: Ethics Approvals

MEMORIAL UNIVERSITY

Interdisciplinary Committee on Ethics in Human Research (ICEHR)

St. John's, NL Canada A1C 5S7 Tel: 709 864-2561 icehr@mun.ca

www.mun.ca/research/ethics/humans/icehr

ICEHR Number:	**20201268-BA**
Approval Period:	December 12, 2019 – December 31, 2020
Funding Source:	
Responsible Faculty:	Dr. Kara Arnold Faculty of Business Administration
Title of Project:	*The Influence of Gender Role Identity on the Precursors of Entrepreneurial Intention of Students*

December 12, 2019

Miss Aparajita Datta
Faculty of Business Administration
Memorial University of Newfoundland

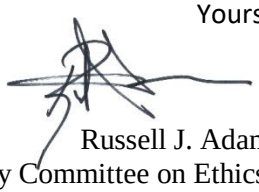
Dear Miss Datta:

Thank you for your submission to the Interdisciplinary Committee on Ethics in Human Research (ICEHR), seeking ethical clearance for your research project. The Committee appreciates the care and diligence with which you prepared your application. However, the emphasis on winning a gift card in the heading / title of the poster and table card and in the email subject line needs to be revised to focus instead on the topic of the study and state that you are conducting it for your masters thesis. The table card also needs to state that participation is not a MUN requirement and will not be reported, as in the poster and email. The survey instructions should reiterate that participants are free to skip any questions that they do not wish to answer. Also, please add the contact information for the Student Wellness and Counselling Centre in the risk section of the consent form, as participants who may be struggling with gender identity issues may find the gender related questions distressing. Please complete the **ICEHR - Post-Approval Document Submission form** and upload the revised recruitment and consent documents.

The project is consistent with the guidelines of the *Tri-Council Policy Statement on Ethical Conduct for Research Involving Humans* (TCPS2). *Full ethics clearance* is granted for one year from the date of this letter. ICEHR approval applies to the ethical acceptability of the research, as per Article 6.3 of the *TCPS2* (2014). Researchers are responsible for adherence to any other relevant University policies and/or funded or non-funded agreements that may be associated with the project.

The *TCPS2* **requires** that you submit an Annual Update to ICEHR before December 31, 2020. If you plan to continue the project, you need to request renewal of your ethics clearance and include a brief summary on the progress of your research. When the project no longer involves contact with human participants, is completed and/or terminated, you are required to provide an annual update with a brief final summary and your file will be closed. If you need to make changes during the project which may raise ethical concerns, you must submit an Amendment Request with a description of these changes for the Committee's consideration. If funding is obtained subsequent to ethics approval, you must submit a Funding and/or Partner Change Request to ICEHR so that this ethics clearance can be linked to your award. All post-approval event forms noted above must be submitted by selecting the ***Applications: Post- Review*** link on your Researcher Portal homepage. We wish you success with your research.

Yours sincerely,



Russell J. Adams, Ph.D.
Chair, Interdisciplinary Committee on Ethics in Human Research
Professor of Psychology and Pediatrics Faculties of Science and Medicine

RA/th

copy: Supervisor – Dr. Kara Arnold, Faculty of Business Administration

MEMORIAL UNIVERSITY

Interdisciplinary Committee on Ethics in Human Research (ICEHR)

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ICEHR Number:	**20201268-BA**
Approval Period:	December 12, 2019 – December 31, 2020
Funding Source:	
Responsible Faculty:	Dr. Kara Arnold Faculty of Business Administration
Title of Project:	*The Influence of Gender Role Identity on the Precursors of Entrepreneurial Intention of Students*
Amendment #:	***01***

March 27, 2020

Miss Aparajita Datta
Faculty of Business
Administration Memorial
University of Newfoundland

Dear Miss Datta:

The Interdisciplinary Committee on Ethics in Human Research (ICEHR) has reviewed the proposed modifications for the above referenced project, as outlined in your amendment request dated March 18, 2020, and is pleased to give approval to display the recruitment poster on the digital screens in the University Centre, and to recruit participants using Facebook and Linkedin, as described in your request, provided all other previously approved protocols are followed.

If you need to make any other changes during the conduct of the research that may affect ethical relations with human participants, please submit an amendment request, with a description of these changes, via your Researcher Portal account for the Committee's consideration.

Your ethics clearance for this project expires December 31, 2020, before which time you must submit an annual update to ICEHR. If you plan to continue the project, you need to request renewal of your ethics clearance, and include a brief summary on the progress of your research. When the project no longer requires contact with human participants, is completed and/or terminated, you need to provide an annual update with a brief final summary, and your file will be closed.

Annual updates and amendment requests can be submitted from your Researcher Portal account by clicking the *Applications: Post-Review* link on your Portal homepage.

The Committee would like to thank you for the update on your proposal and we wish you well with your research.

Yours sincerely,

Kelly Blidook, Ph.D.
Vice-Chair, Interdisciplinary
Committee on Ethics in
Human Research

KB/bc

cc: Supervisor – Dr. Kara Arnold, Faculty of Business Administration

Appendix 2: Survey Questionnaire

Opinion Survey on Entrepreneurship

In the statements that follow, please indicate your level of agreement with the statements, where (**7**) represents **complete agreement**, and (**1**) represents **complete disagreement**. Thank you very much for your cooperation.

Questionnaire Part 1 (Randomized)

Attitude Towards Behavior (ATB)

ATB1—A career as an entrepreneur is attractive for me.

1 ☐ **2** ☐ **3** ☐ **4** ☐ **5** ☐ **6** ☐ **7** ☐
Totally Disagree **Totally Agree**

ATB2—Being an entrepreneur would give me great satisfaction.

1 ☐ **2** ☐ **3** ☐ **4** ☐ **5** ☐ **6** ☐ **7** ☐
Totally Disagree **Totally Agree**

ATB3—Among various career options, I would rather be an entrepreneur.

1 ☐ **2** ☐ **3** ☐ **4** ☐ **5** ☐ **6** ☐ **7** ☐
Totally Disagree **Totally Agree**

ATB4—Being an entrepreneur implies more advantages than disadvantages to me.

1 ☐ **2** ☐ **3** ☐ **4** ☐ **5** ☐ **6** ☐ **7** ☐
Totally Disagree **Totally Agree**

Subjective Social Norms (SSN)

SSN1—My immediate family values the entrepreneurial career more than any other career.

1 ☐ **2** ☐ **3** ☐ **4** ☐ **5** ☐ **6** ☐ **7** ☐
Totally Disagree **Totally Agree**

SSN2—My friends value the entrepreneurial career more than any other career.

1 ☐ **2** ☐ **3** ☐ **4** ☐ **5** ☐ **6** ☐ **7** ☐
Totally Disagree **Totally Agree**

SSN3—My immediate family would approve of my decision to start a business.

1 ☐ **2** ☐ **3** ☐ **4** ☐ **5** ☐ **6** ☐ **7** ☐
Totally Disagree **Totally Agree**

SSN4—My friends would approve of my decision to start a business.

1 ☐ **2** ☐ **3** ☐ **4** ☐ **5** ☐ **6** ☐ **7** ☐
Totally Disagree **Totally Agree**

Perceived Behavioral Control (PBC)

PBC1—I am prepared to start a viable business.

1 ☐ **2** ☐ **3** ☐ **4** ☐ **5** ☐ **6** ☐ **7** ☐
Totally Disagree **Totally Agree**

PBC2—Starting a business and keeping it viable would be easy for me.

1 ☐ **2** ☐ **3** ☐ **4** ☐ **5** ☐ **6** ☐ **7** ☐

Totally Disagree **Totally Agree**

PBC3—I know the necessary practical details to start a business.

1 ☐ **2** ☐ **3** ☐ **4** ☐ **5** ☐ **6** ☐ **7** ☐

Totally Disagree **Totally Agree**

PBC4—If I tried to start a business, I would have a high probability of success.

1 ☐ **2** ☐ **3** ☐ **4** ☐ **5** ☐ **6** ☐ **7** ☐

Totally Disagree **Totally Agree**

Entrepreneurial Intention (EI)

EI1—My professional goal is to be an entrepreneur.

1 ☐ **2** ☐ **3** ☐ **4** ☐ **5** ☐ **6** ☐ **7** ☐

Totally Disagree **Totally Agree**

EI2—I will make every effort to start and run my own business.

1 ☐ **2** ☐ **3** ☐ **4** ☐ **5** ☐ **6** ☐ **7** ☐

Totally Disagree **Totally Agree**

EI3—I am determined to start my business in the future.

1 ☐ **2** ☐ **3** ☐ **4** ☐ **5** ☐ **6** ☐ **7** ☐

Totally Disagree **Totally Agree**

EI4—I am seriously thinking about starting my own business.

1 ☐ **2** ☐ **3** ☐ **4** ☐ **5** ☐ **6** ☐ **7** ☐

Totally Disagree **Totally Agree**

In the statements that follow, please indicate your personal assessment, where (**7**) represents **Very feminine**, and (**1**) represents Very **masculine**. Thank you very much for your cooperation.

Questionnaire Part 2

Gender Role Identity (GRI)

GRI1—Ideally, I would like to be.....

1 ☐ **2** ☐ **3** ☐ **4** ☐ **5** ☐ **6** ☐ **7** ☐

Very Masculine **Very Feminine**

GRI2—Traditionally, my attitudes and beliefs would be regarded as…

1 ☐ **2** ☐ **3** ☐ **4** ☐ **5** ☐ **6** ☐ **7** ☐

Very Masculine **Very Feminine**

GRI3—I consider myself as…

1 ☐ **2** ☐ **3** ☐ **4** ☐ **5** ☐ **6** ☐ **7** ☐

Very Masculine **Very Feminine**

GRI4—Traditionally, my interests would be regarded as…

1 ☐ **2** ☐ **3** ☐ **4** ☐ **5** ☐ **6** ☐ **7** ☐

Very Masculine **Very Feminine**

GRI5—Traditionally, my behavior would be regarded as…

1 ☐ **2** ☐ **3** ☐ **4** ☐ **5** ☐ **6** ☐ **7** ☐

Very Masculine **Very Feminine**

GRI6—Traditionally, my outer appearance would be regarded as…

1 ☐ **2** ☐ **3** ☐ **4** ☐ **5** ☐ **6** ☐ **7** ☐

Very Masculine **Very Feminine**

Below you will find a continuum that goes from left to right. We would like you to place yourself somewhere along this scale: the far right of the scale reflects a person who feels they are 100% feminine, while the far left of the scale reflects a person who feels they are 100% masculine. Where would you place yourself on this continuum (0 -100, where 0 represents those who are 100% masculine and 100 represents those who are 100% feminine).

Masculine **Feminine**

Demographics

My age is: <dropdown>

I am a(n) ☐ Canadian or permanent resident student ☐ international student

I am a(n) ☐ undergraduate ☐ graduate student

My gender is: ☐ male ☐ female ☐ prefer not to disclose

My area if study is: <dropdown>

This is my ☐ first ☐ second ☐ third ☐ fourth ☐ fifth ☐ sixth year in my program