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Faculdade de Ciências Aplicadas

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SUMMARY

Entrepreneurship has been an important ally of countries` economic development. The past decades have been particularly challenging for women, however, they made advancements regarding their participation in entrepreneurial activities all over the globe. Despite advancements, women and men present some differences when it comes to their behavioral characteristics in entrepreneurship, such as in self-efficacy and entrepreneurial intention. On this matter, the university environment and support to entrepreneurship are considered as important factors that may positively influence students' self-efficacy and consequently their entrepreneurial intention. For this reason, this research analyzed existing gender differences in entrepreneurial behavior and in the support evaluation of the university environment to entrepreneurship in a developing country. Making use of secondary data collected by Endeavor in partnership with SEBRAE, the method had a quantitative approach, by using Partial Least Squares - Structural Equation Modeling to fulfill de purpose of this research. A conceptual model was also proposed. The results showed the students' self-efficacy impacted positively on their intentions and the university environment for entrepreneurship support also had a positive impact on students' self-efficacy. Regarding gender differences, it lies in females' self-efficacy, which presents a higher impact on entrepreneurial intentions when compared to males. Although results for both women and men presented self-efficacy positive influence on intentions, the impact is more positively perceived by females, which contributes to the debate on the importance of developing self-efficacy in women and on the university role in developing it as well. Contributions can be identified in both theoretical and practical spheres. These findings can result in practical contribution if taken in consideration by universities' boards and policymakers to develop materials and programs, which could aid female entrepreneurship enhancement. Furthermore, this research also contributed theoretically, by resulting in a theoretical model which approached constructs under evaluated altogether in this country.

Key words: female entrepreneurship, self-efficacy, university environment, intention, gender.

RESUMO

O empreendedorismo tem sido um aliado importante do desenvolvimento econômico dos países. As últimas décadas foram particularmente desafiadoras para as mulheres, entretanto, alcançaram avanços na participação no empreendedorismo por todo o mundo. Apesar dos avanços, mulheres e homens apresentam diferenças no que se diz respeito às características comportamentais no empreendedorismo, tais quais: autoeficácia e intenção empreendedora. Nesse aspecto, o ambiente universitário e de apoio ao empreendedorismo são considerados importantes fatores que podem influenciar positivamente a autoeficácia dos estudantes e, consequentemente, a intenção empreendedora. Por conta disso, essa pesquisa analisou a existência de diferenças de gênero no comportamento empreendedor e na avaliação do suporte do ambiente universitário ao empreendedorismo em um país em desenvolvimento. Fazendo uso de dados secundários coletados pela Endeavor em parceria com o SEBRAE, o método teve abordagem quantitativa, através da Modelagem de Equações Estruturais com Mínimos Quadrados Parciais para preencher o propósito de pesquisa. Um modelo conceitual também foi proposto. Os resultados mostram que a autoeficácia dos alunos de graduação impactou positivamente em suas intenções empreendedoras e que o ambiente universitário de suporte ao empreendedorismo também impacta na autoeficácia dos alunos. Com relação às diferenças de gênero, a diferença está na autoeficácia feminina, que apresenta impacto maior na intenção empreendedora quando comparado com homens. Embora os resultados de ambos homens e mulheres apresentem impacto da autoeficácia nas intenções empreendedoras, o impacto é mais percebido pelo gênero feminino, o que contribui para o debate da importância do desenvolvimento da autoeficácia em mulheres e também do papel da universidade em desenvolvê-la. Contribuições podem ser identificadas nas esferas teóricas e práticas. Estes resultados podem resultar em contribuições práticas se levados em consideração pelo corpo universitário e também por formuladores de políticas, o que pode auxiliar na melhora do empreendedorismo feminino. Além disso, essa pesquisa também contribui teoricamente, resultando em um modelo teórico que abordou constructos pouco explorados de forma conjunta neste país.

Palavras-chaves: empreendedorismo feminino, autoeficácia, ambiente universitário, intenção, gênero.

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1. INTRODUCTION

Women face, since as we can recall, challenges in all spheres. The labor environment and business opportunities are aspects in which the struggle persists, although several barriers and challenges have been broken and overcome, several rights had been conquered and stereotypes had been deconstructed throughout decades of movements in favor to these achievements. In light of entrepreneurship, the field offers a chance of deviating stereotypes and lack of opportunities, offering emancipation and empowerment to women in every region, even though some countries are still fighting situations that are considered by the Occident as basic rights.

As much the entrepreneurship field has grown due to its broad contributions to countries` economy development (Audretsch et al., 2008; Davey et al., 2016), women have also been put on the spotlight due to their emergence as players in business and job creation, specifically in entrepreneurship (Gupta & Mirchandani, 2018; Urbano & Guerrero, 2013).

Reports such as the Global Entrepreneurship Monitor (GEM, 2019) and SEBRAE (2018) show global and national improvements regarding female participation in entrepreneurship. Currently holding an impressive amount of 52 million entrepreneurs, Brazil has 24 million female entrepreneurs, which corresponds to 46% (SEBRAE, 2019b). Globally, females' development in the field carries several gaps, e.g. lower self-efficacy, intentions and education levels than men, higher fear of failure, more difficulties to access networking and finance (GEM, 2019). Entrepreneurial self-efficacy and individual motivations compose the main elements of the intention to start a business (Memon, Soomro, & Shah, 2019; Saeed et al,. 2015).

According to Fayolle & Gailly (2015), the concept of intention and its precedents have been receiving attention in entrepreneurship field of research due to its assistance into predicting behavior and understanding how intentions are shaped. Due to this aspect, there has been a growing interest in initiating and enhancing promotion and support of entrepreneurship among students (Schwarz et al., 2006), once the university has been going through changes, such as a shift from research institutions to entrepreneurial ones (Urbano & Guerrero, 2013).

Even though the crescent importance of women as entrepreneurs and its contributions to the economy have been highlighted over the past years, the topic has still been

understudied (Brush & Cooper, 2012). According to research developed by Brush & Cooper (2012), the literature suggests that researches in women entrepreneurs only comprise 10% of studies in the field by the year, also, a shift from financing and capitalizing women`s ventures to their motivations, work/family balance, and other nonfinancial aspects can be noticed. In the bibliometric search performed for this dissertation in Chapter 3 (3.3 Female Entrepreneurship), it is possible to acknowledge, for instance, that it is also an understudied issue when considering the issue *female entrepreneurship* in Brazil.

Since gender gaps in pursuing an entrepreneurial career may vary across nations, it is necessary to comprehend the environment and its precedents (Dheer et al., 2019). Therefore, this research attempted to take the opportunity to fill in the research gap in studying female entrepreneurial activities in developing countries (Brush & Cooper, 2012; Dheer et al., 2019), and it approached a study in the context of Brazilian universities. Moreover, due to the fact that, as students have been receiving entrepreneurial education and they might become entrepreneurs (Gupta & Mirchandani, 2018; Marques, Santos, Galvão, Mascarenhas, & Justino, 2018), further studies are required to close in the gap in research of entrepreneurship and gender (Laudano et al., 2019).

According to Chowdhury, Endres & Frye (2019), understanding gender differences in self-efficacy could help improve women's performance and, consequently, their entrepreneurial activities, moreover, it might assist them into achieving greater gains by helping them overcome the issues of employability in large companies and discrimination in the job market and also contribute by empowering women (Krakauer et al., 2018).

As argued by Guerrero & Urbano (2012), each university community is unique and students' behavior towards entrepreneurship is a combination of different factors, making it necessary to analyze different contexts in order to comprehend different backgrounds, considering this aspect, this research will evaluate different backgrounds in order to provide a larger comprehension from the context. Furthermore, measuring the student`s perception regarding the support they receive from the university is crucial to understand its impacts on them (Saeed et al., 2015). This could be achieved by measuring students' perception on the support they get, or as named by Saeed *et al.*, (2015, p. 1131), "perceived university support".

The supportive dimensions to be evaluated in this research are perceived concept development support and perceived educational support. Whereas perceived concept development is related to knowledge, skills and other kinds of support the university can provide and the educational support being the effort provided by the university in order to raise awareness about the entrepreneurship field, regarding motivation roles, the development of ideas about opening a business (Saeed et al., 2015).

From a practical outlook, this research, which analyzed students from 70 universities in Brazil, provided an evaluation of entrepreneurship in universities and regarding gender differences. This may assist future researchers in developing materials and programs to aid female entrepreneurship (Cho et al., 2019). Moreover, the data gathered might provide basis for policy creation and help promote female entrepreneurship, besides promoting educational programs and trainings (Ramadani et al., 2015).

To fulfill the purposes of this research, afterwards the introduction, Chapter 2 approaches the Research Objectives and Question; Chapter 3 presents the Theoretical Framework; Chapter 4 Research Methodology; Chapter 5 Research Analysis; Chapter 6 Discussion and Chapter 7 Final remarks.

2. RESEARCH OBJETIVES AND QUESTION

The main purpose of this research is to analyze the relationship between the entrepreneurial characteristics (self-efficacy and intention) and the university environment, and the existence of gender differences regarding these relationships. Thus, the research question is *"What are the differences between genders regarding entrepreneurial characteristics and in the university environment support evaluation to entrepreneurship?"*

2.1. Specific research objectives

The specific research objectives unfolds below:

- Explore entrepreneurship through the following perspectives: gender, the university environment and also entrepreneurial characteristics, such as intention and self-efficacy;
- Propose a conceptual model in order to evaluate the relations among university environment, self-efficacy and entrepreneurial intention through a gender perspective;
- Validate the proposed theoretical model, testing the established hypotheses.

3. THEORETICAL FRAMEWORK

The theoretical framework addressed Entrepreneurial Behavior Characteristics (3.1), University Environment (3.2) and Female Entrepreneurship (3.3), through literature and reports' perspectives, to present previous studies in the field and also the latest data.

3.1 Entrepreneurial Behavior characteristics

Entrepreneurship field of study has gained a significant highlight and become prosperous in academic production in the past years (Landström & Harirchi, 2018). However, it encompasses several differences when it comes to concepts and definitions (Landström & Lohrke, 2010).

Entrepreneurship can be described in many ways, once the entrepreneurial initiative covers risk-taking, renewal, among other concepts, plus the emphasis on exploration, search and innovation (Cuervo et al., 2007). It is often associated with the creation of new businesses and the exploring of new opportunities (Gartner, 1985; Malecki, 2018) and also with the creation of innovative businesses and products (Nelson & Winter, 1982).

For Davidsson (2016), entrepreneurship can be summed up in two points: a) the creation (or attempt) of a new economic activity and b) anything that concerns those who create and run their own business. The author defends the adoption of the concept stated above once it is the most commonly used in the field (Davidsson, 2016). On the contrary, Shane & Venkataraman (2000) argued that entrepreneurship does not consist in creating new companies. For this research, the concept of entrepreneurship will be considering it as the creation of a new activity or new business (Davidsson, 2016; Malecki, 2018).

In agreement with Cuervo et al., (2007), the study of entrepreneurs as individuals demands an analysis that evaluate variables, such as: appearance, personal characteristics, psychological profile (risk-taker, achiever) and non-psychological profile (education, experience, family, etc).

In conformity, several characteristics are linked to entrepreneurial behavior, e.g. self-efficacy, opportunity recognition, persistency, sociability (Markman & Baron, 2003), planning, risk-taking, innovation (Schmidt & Bohnenberger, 2009) among others.

Self-efficacy is an ability which allows individuals to be motivated and effectively execute actions since they`re regulated by the recognition of being able to perform some activity (Schmidt & Bohnenberger, 2009). Opportunity recognition relates to the ability

an individual holds in differing opportunities and adversities (Markman & Baron, 2003; Krakauer et al., 2018). Persistency regards the behavior of working and overcoming obstacles when facing adversities (Markman & Baron, 2003). Sociability stands for the ability of making use of one's social network in order to support the professional activity (Markman & Baron, 2003). Planning consists in the preparation for the future (Schmidt & Bohnenberger, 2009). Risk-taking, one of the most important characteristics for entrepreneurship (Schmidt & Bohnenberger, 2009), consists in considering and weighing variables regarding business. Innovation stands for the ability of developing ideas and solutions in a creative way (Schmidt & Bohnenberger, 2009).

Even though there are many characteristics that could be evaluated, for this research self-efficacy will be approached, once in previous research, it has been demonstrated as a distinct characteristic of the entrepreneur (Chen et al., 1998), besides, this construct has often been studied in association with entrepreneurial intentions (Giacomin et al., 2010; Saraih et al., 2018).

The following sections explained the two fundamental behavioral characteristics for this research (3.1.1) Entrepreneurial Intention and (3.1.2) Self-Efficacy. The purpose of these sections is to provide with definitions and theoretical background.

3.1.1 Entrepreneurial intention

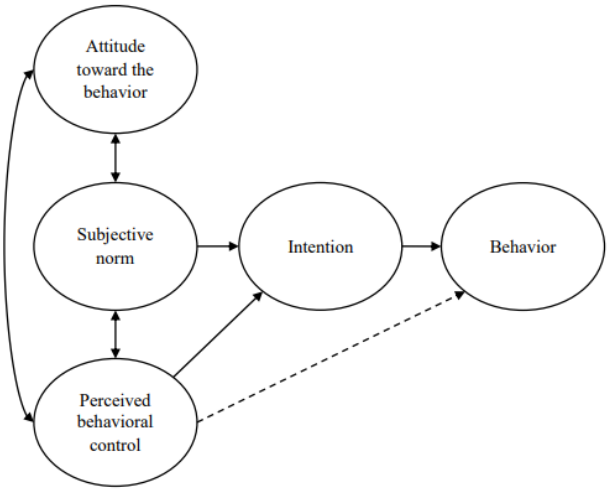
In the past years, intention and its antecedents have acquired attention in entrepreneurship field since they may be useful in foreseeing entrepreneurial behavior and also how intentions are shaped (Fayolle & Gailly, 2015). For Krueger Jr et al. (2000), it is possible to predict any planned behavior by observing intentions, not beliefs, personality or demographics, moreover, more than understanding intentions it is necessary to comprehend the antecedents of intentions.

Regarding Entrepreneurial Intention (EI), several models can be found in the literature, being the most broadly used: The Theory of Planned Behavior (Ajzen, 1991) and Shapero's model of Entrepreneurship Event (Shapero & Sokol, 1982). While Ajzen's model can be used at many different fields, however, Shapero & Sokol's is a theory focused on entrepreneurship.

The Theory of Planned Behavior (TPB) considers three aspects before the actual *intention*: attitude towards the behavior, subjective norms and perceived behavioral control (Ajzen, 1991).

As shown in Figure 1, the first aspect, attitude towards the behavior, refers to the degree in which a person favors certain behaviors in question (Ajzen, 1991). The second aspect is a social factor named subjective norms, which refers to the social pressures an individual may suffer whether to perform certain behavior (Ajzen, 1991). Third, perceived behavioral control consists in the perceived ease or difficulty at performing certain behavior, i.e the more favorable the attitude and behavior and the greater is the perceived behavioral control, the stronger should be one's intention to perform specific behaviors (Ajzen, 1991).

Figure 1: Theory of Planned Behavior: Ajzen Intention Model



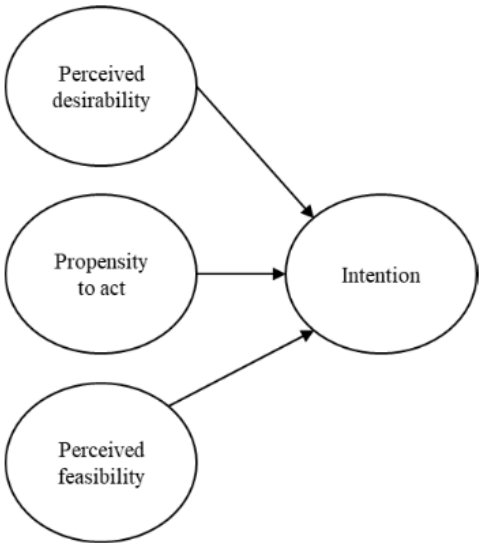
Source: Ajzen (1991).

Therefore, Shapero & Sokol (1982) establishes in The Theory of Entrepreneurship Event (Figure 2) an attempt to approach all variables in entrepreneurship (social, situational and individual). According to the theory, the factors that may affect the entrepreneurial intention are perceived desirability, propensity to act and perceived feasibility (Shapero & Sokol, 1982). Authors argue Shapero's Entrepreneurship Event (SEE) posits the entrepreneurial event is initiated by the intention (Esfandiar et al., 2019), by establishing the antecedents which will be described below:

- Perceived desirability: it refers to the extent of attractiviness the individual has to open his own business (Shapero & Sokol, 1982);

- Propensity to act: it is the personal predisposition to act on one`s decision, being the attitudes towards the `I will do it` behavior (Krueger Jr et al., 2000; Shapero & Sokol, 1982).
- Perceived feasibility: it refers to the capability perceived by the individual in which he feels apt to start a business (Krueger Jr et al., 2000). According to Krueger Jr et al. (2000), feasibility is also referred as perceived behavioral control in some studies.

Figure 2*:* Shapero & Sokol's Thery of Entrepreneurship Event



Source: Shapero & Sokol (1982).

Some authors argue both theories have elements in common, in which the Theory of Planned Behavior (Ajzen, 1991) is similar to the aspects presented by Shapero's (1982) (Autio et al., 2001). Autio et al. (2001) defend that both theories complement each other, and cite as main difference between them the propensity to act of an individual, in which the TPB emphasizes more on the characteristics and previous entrepreneurial experiences one has.

For Pihie & Bagheri (2013) the efforts of specifying the mechanisms of perceived self-efficacy`s effects on an individual's behavior have been the focus of many researches and educators in the entrepreneurship field. This fact is due to the motivating role self-efficacy plays in enabling individuals and motivating them into getting into a new venture. Moreover, self-efficacy is a factor considered by the literature as a predictor of entrepreneurial intention (Saraih et al., 2018; Wilson et al., 2007), since according to

Zhao, Hills & Seibert (2005), it has shown influences on individuals' choice of activities, goals, persistence and performance.

Among students, Saraih et al., (2018) and other researchers results' reveal that self-efficacy is significantly correlated to entrepreneurial intention (Doanh & Trang, 2019; Qiao & Huang, 2019; Tsai et al., 2014).

3.1.2 Self-efficacy

Even though women's participation in the entrepreneurship field has improved, it is necessary to understand gender behavioral differences. One of these differences is that women are less likely to be leaning to open their own business (Dempsey & Jennings, 2014). Several factors contribute to the existing gender behavioral differences and interest in an entrepreneurial career (Wilson et al., 2007). A factor that can be mentioned is *self-efficacy* (Dempsey & Jennings, 2014).

Self-efficacy, as defined by Bandura (1977), is the individuals' self-perception about their own capacity of performing determined behavior. According to the author, individuals tend to avoid situations, that according to their perceptions, exceed their capacities (Bandura, 1977), being extremely important to entrepreneurship, once it may affect even the career one chooses and whether one's pursuing an entrepreneurial career.

Still according to Bandura (1977), self-efficacy not only affects life choices but also how much effort the individual employs in his performance, once the higher self-efficacy perception, the higher will be the effort employed by the individual.

Entrepreneurial self-efficacy (ESE) is rooted on Bandura's concept and it is believed to be the influencer of career choices and performance outcomes (Newman et al., 2019). Complimentarily, as proposed by Saeed *et. al*. (2015), individuals with ESE's perceptions may be led to self-employment. Internationally, self-efficacy has been linked to females' career choice since the 1980's (Betz & Hackett, 1981). Betz & Hackett (1981) argue that extending Self-efficacy to the career-choice process is important, especially to explain different developments between men and women. The authors confirmed that males' self-efficacy were higher for traditionally males' occupations, while women's were also higher for traditionally females' occupations (Betz & Hackett, 1981).

Individuals with high levels of entrepreneurial self-efficacy are more likely to relate to profit from the challenging situations presented by the entrepreneurship, while people

who present low levels are bound to be more stressed and consider failure, consequently, individuals who consider themselves efficacious are more likely to enter into entrepreneurial ventures (Chen et al., 1998).

Men usually show equally sense of self-efficacy for both traditional male and female occupations, in contrast, women judge themselves more apt to perform occupations that are traditionally held by females, presenting weaker self-efficacy when considering occupations performed by men (Bandura et al., 2001). In previous research with children, Bandura et. al. (2001)'s results show boys present more efficacy when considering careers in technology, science and military, while girls showed more efficacy in health-care and educational fields.

In previous research, Yussuf et al., (2019) results concluded that general self-efficacy had a significant and positive effect on women entrepreneur's performance, also enabling the link between high self-efficacy and success, which means high levels of self-efficacy may also lead to enhanced performance and business success.

For Bandura (2012), with regard to students, self-efficacy has a direct influence on intention behavior once it relates to their motivation and competence of starting in a new venture, which might even indicate their preparation to enter in the entrepreneurial field. According to Pihie & Bagheri's (2013) conclusions, their study shows that self-efficacy is the strongest predictor of university students career intentions, once it plays major role on students` regulation in the decision of becoming an entrepreneur.

On the contrary of previous studies, Shinnar, Hsu & Powell (2014), who observed self-efficacy before and after an entrepreneurship course developed during a semester in a university, concluded that whereas men's self-efficacy increased, women's did not. The authors also observed that men's intentions increased slightly while women's decreased very slightly (Shinnar et al., 2014).

Based on this, it is possible to consider self-efficacy as an influencer of the entrepreneurial intention. Therefore, this research proposes the following hypothesis:

H1. Undergraduate student's self-efficacy has a positive influence on undergraduate student's entrepreneurial intention.

3.2 University Environment

Previous literature points to evidence which suggests that the decision to pursue an entrepreneurial career may rely on and be influenced by supportive environments (Lee & Peterson, 2000; Toledano & Urbano, 2008). Supportive environments can be offered through the construction of ecosystems, which can be defined as an arrangement of several institutions, such as governance bodies, entities, and interconnected individuals (Morris et al., 2017).

First, it is relevant to consider that entrepreneurial ecosystems do not emerge in any region. According to Mason & Brown (2014), these ecosystems usually grow in "fertile" places, once it needs established and high knowledge development, large body of scientist and researchers. Secondly, these regions attract several high level professionals, as it has been experienced by the Silicon Valley (Mason & Brown, 2014).

On these ecosystems, the university environment has gained attention, once it offers knowledge production and dissemination, spaces to foster entrepreneurial initiatives, among others (Guerrero & Urbano, 2012; Moraes et al., 2018).

University environment, as defined by Moraes et al., (2018), is a concept used to explain the different spaces in teaching, research and outreach activities (such as lectures, events, workshops) that students can have at hand when considering a higher education.

By virtue of the rise of entrepreneurship as an academic subject, higher education programs began offering several entrepreneurship courses and programs (Peterman & Kennedy, 2003). Although the university environment does not pressure students into getting an entrepreneurial career, authors argue the perceived (or lack of) support from the university may affect students' interest in entrepreneurial activities (Vracheva et al., 2019).

In the past decades, university has undergone changes regarding its main roles (Alves et al., 2019; Etzkowitz et al., 2000). Alves et al. (2019) consider that the university has undergone major changes especially as a result of increasing pressures to go beyond its role of producing science and technology, and also have commercial applications. Therefore, universities have been through a process in which they turned from research institutions to entrepreneurial ones (Urbano & Guerrero, 2013).

Frondizi *et al*. (2019) argue the highlight directed to knowledge was increased by the global transformations in the economy and society, such as the grown importance of intangible capital, e.g. education, human resources and training.

According to the World Economic Forum (WEF), globally, the gender gap regarding education attainment is relatively small, however, it is critical to consider that 10% of girls aged 15-24 are illiterate in the world (WEF, 2020). Gender parity in education has been achieved in only 35 countries around the globe, though, certain developing countries still have to close in 20% of this gap (WEF, 2020).

According to UNESCO, gross enrollment in tertiary education (which corresponds to universities and colleges) in Brazil presents more participation of females, considering the period 2011-2017 as shown in Table 1:

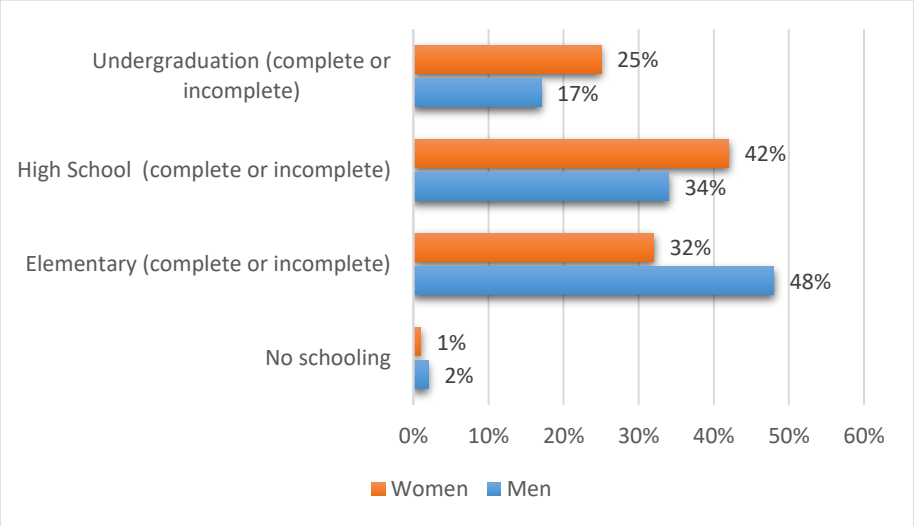
Table 1: Gross enrollment ratio (%) – Tertiary education by gender (2011-2017)

TERTIARY EDUCATION (%)	2011	2012	2013	2014	2015	2016	2017
Total	43.46	44.97	46.82	49.91	51.05	50.49	51.34
Female	49.34	51.67	53.87	57.59	58.5	58.75	59.45
Male	37.57	38.34	39.86	42.34	43.67	42.53	43.53

Source: UNESCO, 2020.

In consonance with OECD statement (2017) that females' level of formal education usually resembles or exceeds males', Brazilian female entrepreneurs have presented more education level when compared to men, as shown in Figure 3:

Figure 3: Brazilian Entrepreneurs schooling data



Source: Sebrae (2019)

Even though it still shows a low schooling level rate for both genders, women show higher schooling in both under graduation and high school levels. Complimentarily, average years of study in Brazil have been increasing since 2016: amongst 25 year-old people, in 2018, the average was 9,3 years, being 9 years in respect to men 9,5 to women (IBGE, 2018a). Technological higher education courses are Brazilians' favorite type, presenting itself with 2-3 years of duration (less than a bachelor degree) and focusing more on one specific professional area (IBGE, 2018a). In addition, technological higher education courses are males' preference (10,3%), when compared to females' (7,1%).

Due to national's issue related to school evasion, several citizens at 18-24 age, while they should have been into a higher education program, where actually taking Basic Education to Young and Adults (known in Brazil as EJA – *Educação para Jovens e Adultos)* (IBGE, 2018a). Considering this issue, at this age, in 2018 29,3% of females were in a higher education course or have already finished it, while 9,5% of female students of the same age were still finishing basic education, as shown in Table 2.

Table 2: Education indicator by gender (age 18-24) – Brazil (%)

Gender	Schooling rate	Higher education liquid rate	Schooling delay	No attendance
Male	31,3%	21,2%	12,5%	68,7%
Female	34,2%	29,3%	9,5%	65,8%

Source: IBGE, 2018a.

It is critical and relevant to discuss entrepreneurship and an education program with business purposes in a country like Brazil, which has over 60% of no school attendance at the age 18-24 (which is normally the age students start moving towards a university program). Especially if we consider that for OECD (2017), education embodies an important role in the longer term, by influencing women's (and men's) social attitudes towards entrepreneurship. The Organization suggests that the curriculum must be adapted and any gender stereotype must be eliminated to phase out the 'masculine' view of some sectors. Yet according to the report (OECD, 2017), as women tend to perceive themselves as owners of less entrepreneurial skills, it would be necessary to address a different strategy in education.

According to Franke & Lüthje (2004), external factors are often used to explain why the personality traits and attitudes of an individual may affect his aspirations, being the university one factor that might influence students' decisions to become entrepreneurs. Consequently, this matter has been broadly addressed, since the university has been recognized to impact positively, by providing training and education, on the creation of new entrepreneurs (Franke & Lüthje, 2004).

To aid students, universities have implemented numerous forms of support to entrepreneurship (Hofer & Potter, 2010). This support, as called by Saeed et al., (2015, p. 1131), is the "perceived university support".

Perceived university support dimensions to be evaluated in this research are perceived concept development support and perceived educational support. Perceived educational support consists in what a university can offer to its students in favor of making them apt to start their own business, e.g.: knowledge, skills, internship, networking (Saeed et al., 2015), which can be achieved through courses specifically related to entrepreneurship (Mustafa et al., 2016). As defined by Saeed et al., (2015), the perceived educational support presents the following aspects:

- Traditional role: it consists in providing students with general knowledge for a new venture creation;
- Commercialization role: it consists in providing individually or in groups a more targeted support.

By cause of scholars considering universities as relevant instruments to foster entrepreneurial culture and spirit (Saeed et al., 2015), several entrepreneurial universities and programs started being developed around the globe (Hofer & Potter, 2010).

As suggested in previous research, entrepreneurship programs and related support can play a significant role in fomenting entrepreneurial self-efficacy among university students once it can provide with knowledge and role models (Krueger & Brazeal, 1997; Saeed et al., 2015) and also help students develop ideas into workable concepts and improve their confidence and self-efficacy (Mustafa et al., 2016).

Regarding gender, for Dempsey & Jennings (2014), the existence of differences in entrepreneurial self-efficacy between genders is clear, once women tend to feel less efficacious than men. For Wilson et al. (2009), providing access to entrepreneurial education to women is a way of enhancing an entrepreneurial career, especially in

entrepreneurial competences and activities as “learning by doing”, conducting feasibility studies and cases on real business may contribute to increase ESE. In previous research, Wilson et al. (2009) concluded that women who had entrepreneurial education were more likely to have higher entrepreneurial self-efficacy than the ones who had not.

On the other hand, perceived concept development approaches the universities` efforts to provide awareness about entrepreneurship, as well as a business-motivation role, in which this role consists in the development of ideas and knowledge related to opening a business and the presentation to business role models (Saeed et al., 2015).

For Wilson, Kickul & Marlino (2007) targeted education can positively impact on developing self-efficacy. This target education may be promoted through studies on feasibility, development of business plans, real business simulation programs and through entrepreneurial education (Wilson et al., 2007), through incubators, prototype development engagement, funding for startups technology transfers, entrepreneurship degree offering, amongst others (Rideout & Gray, 2013). Accordingly, Welsh *et al*. (2018) suggest that proving educational opportunities in higher education for women and also enabling partnerships with world study organizations might enhance female entrepreneurship.

According to the literature, several researches suggest that women and men differ on how they perceive the role of education in their entrepreneurial success (Bamiatzi, Jones, Mitchelmore, & Nikolopoulos, 2015; Gupta, Goktan, & Gunay, 2014; Wilson et al., 2007). Accordingly, Chowdhury & Endres (2005) argue that self-efficacy is closely related to education, moreover their research’s results show that women with the same education level as men lack self-perceived knowledge. As suggested by the authors, in order to improve self-efficacy and consequently entrepreneurial intentions, it is necessary not only to focus on the improvement of entrepreneurship support but also on the knowledge gain perception of women (Chowdhury & Endres, 2005). Complimentarily, Giacomin et al., (2010) argue that university programs may reduce the negative perception they have regarding their entrepreneurial self-efficacy, what may contribute to better chances in entrepreneurship.

Shneor & Jenssen (2014) also proved that an entrepreneurial education affects women more than men, though, this result was possible because it was partially mediated by prior exposure to role-models in both genders.

On the contrary to previous research, Ward, Hernández-Sanchéz & Sánchez-Garcia (2019) suggest that males and females university students do not differ on perceiving entrepreneurial skills, which could impact intentions. According to the literature, education would merely provide opportunities to develop competences, eliminating existing discrimination due to lack of it (Ward et al., 2019; Wilson et al., 2007). Moreover, according to Ward et al., (2019) results, opposing to previous studies on self-efficacy and reflections of university on students, the university support did not impact on neither males' or females' self-efficacy.

Regarding a supportive university for entrepreneurial purposes, this research proposes the following hypothesis:

H2. A supportive university environment for entrepreneurship has a positive influence on undergraduate student's self-efficacy.

3.3 Female Entrepreneurship

When it comes to gender studies, it is important to observe that, in feminist theories, the difference existence between "gender" and "sex" (Cerchiaro et al., 2009). Sex, for instance, is biologically determined (Costa, 1994), while gender, according to Calás & Smircich (1999), is a social construction, that might be a product of living experience and socializing.

According to Calás & Smircich (1999), there are several feminist theories, such as: liberal, radical, psychoanalytic, Marxist, socialist, post-modern and multicultural. For this research, it is aimed at developing a research in neutral aspect, for that reason, it is believed to be the best fit to consider a liberal approach, moreover, this approach usually relies on quantitative analysis (Calás & Smircich, 1999).

Liberal's theoretical main focus is on males' and females' similarities, assuming that, when treated equally and provided same conditions and opportunities, no gender attitude and behavior differences will exist (Davies, 2012). It considers men and women as equals, and it also argues that women are as capable and rational as men (Davies, 2012).

In Organizational studies, this approach tends to favor a positivist epistemology, assumed as gender neutral (Davies, 2012). According to the author (Davies, 2012), in this type of research approach, the focus is mainly on understanding men and women's differences and gender is considered a variable within the research design.

This section aims to provide theoretical framework along with data of global and national reports regarding female entrepreneurship, divided into the following topics: 3.3.1 Global Dataset on Female Entrepreneurship and 3.3.2 Female Entrepreneurship in Brazil.

3.3.1 Global Dataset on Female Entrepreneurship

Entrepreneurship research field has gained popularity due to its positive effects on economic growth (Audretsch et al., 2008; Brush & Cooper, 2012; de la Cruz Sánchez-Escobedo et al., 2011) and also its capacity of enabling social rise of different social classes (Vodă & Florea, 2019).

Female entrepreneurship (or Women's Entrepreneurship) relates to businesses created and managed by women (McAdam, 2013). Following the pattern of Entrepreneurship, Female Entrepreneurship also lacks an agreement into a universal definition and it may vary on country. In the United States, for instance, female entrepreneurship is considered to be as an enterprise constituted 51% of women, while in the United Kingdom, the ownership may be wholly or majority of females' (either one or more) (McAdam, 2013).

According to Özsungur (2019), in a world where male business culture is prevalent, women advance rapidly though, placing themselves as important players in the entrepreneurial field. Furthermore, female entrepreneurship is influenced by social, psychological, legal, technical, economic and social environment, which may also vary according to its location (Özsungur, 2019).

Regarding motivations, according to Kirkwood (2009), there are pull factors (the ones which motivate) and push factors (the ones which unmotivated) that might affect women's decision towards entrepreneurship. According to Table 3, pull factor may occur due to business opportunities, necessity to gain extra money or even to acquire independence, while push factors may present themselves as frustrations motives, losing a job or even family pressure.

Table 3: Pull and Push factors towards female entrepreneurship

PULL FACTORS	PUSH FACTORS
Freedom and great independence	Deprivation and frustration
Provide opportunities for education	Dissatisfaction with current job
Provide family safety	Loss of job
Business opportunity	Tired of job
Need for extra income for the family	Immigrant
Reputation in traditional family business	Finished training
Demand for social status	Family pressure/father profession
Creativity	Economic deficiencies
Non complex and high profit	-

Source: adapted from Kirkwood (2009) & Özsungur (2019).

For Kirkwook (2009), men and women present and behave in a similar way regarding pull and push factors. However, her studies show that women care more than men regarding the impact of opening a business on their family, besides considering others' opinion more when making a decision whether to open a business (Kirkwood, 2009).

In the past few years, women have increased their participation regarding entrepreneurship around the world (Mastercard, 2018). Although, the Global Entrepreneurship Monitor (GEM) has recently shown in a research with 49 economies including Brazil, that only six of them (Angola, Indonesia, Panama, Thailand, Qatar and Madagascar) had shown more equal participation in entrepreneurship (GEM, 2018), women are emerging as players in business and job creation (Gupta & Mirchandani, 2018; Urbano & Guerrero, 2013).

Even though progress and improvements have taken place in several areas, some challenges remain for women entrepreneurs, such as in the motivation aspect, lower growth expectation and higher rate of discontinuance when compared to men (GEM, 2017). According to GEM's women report (2017), some actions regarding support, coaching, access to capital, education and training would be important to improve and sustain female entrepreneurship over time.

As a result of the growing importance of women's role in entrepreneurship, literature has emerged and also the need to investigate several dimensions of female entrepreneurship (Yadav & Unni, 2016). The first studies on the field started in the 1970's with Schwartz's paper (Schwartz, 1976). According to Yadav & Unni (2016), Hisrich & O'Brien made the first academic conference about women entrepreneurs at Babson

College in 1981. For Henry, Foos & Ahl (2016), it was after the 1980's that numerous articles began to appear and over the past 30 years, the research field shifted from purely descriptive explorations to a clear effort to embed research within sophisticated conceptual frameworks.

According to Yadav & Unni (2016), it is possible to find the first researches in the field in Table 4 as following:

Table 4: Chronological Summary of the first studies on Women Entrepreneurship

Year	Study type	Reference
1976	First Journal article	Schwartz, E. (1976). Entrepreneurship: A new female frontier. Journal of Contemporary Business, 5, 47–76
1979	First Policy paper	The bottom line: Unequal enterprise in America. (1979). Report of the President's Inter- agency Task Force on Women Business Owners. Washington, DC: Government Printing Office
1983	First conference paper presentation	Hisrich, R.D., & Brush, C.G. (1983). The woman entrepreneur: Presentation implications of family, education, and occupation. In J.A. Hornaday, J.A. Timmons, & K.H. Vesper (Eds.), Frontiers of entrepreneurship research—Proceedings of the Babson College Conference on Entrepreneurship (pp. 255–270) Wellesley, MA: Babson College.
1985	First Academic book	Goffee, R., & Scase, R. (1985). Women in charge: The experiences of female entrepreneurs. London: George Allen and Unwin
1998	First Policy oriented Conference Organization on Women Entrepreneurship	Organization for Economic Cooperation and Development (OECD) Conference on women entrepreneurs.
2003	First academic Conference on Women entrepreneurship	Diana International Conference on Women's Entrepreneurship Research
2006	GEM Report on Women and Entrepreneurship	Global Entrepreneurship Monitor's (GEM) special topic report on women and entrepreneurship.
2009	First dedicated Journal	International Journal of Gender and Entrepreneurship

Source: Yadav & Unni (2016).

According to the OECD (2017), women not only tend to have different motivations and intentions in entrepreneurship but appear as more likely to engage in self-employment to balance work-life and to avoid the glass-ceiling[1] in employment. In addition, the OECD report (2017) states women have a potential yet not realized.

Several barriers are faced by women when attempting to engage in entrepreneurial activities, being the difficulties in finance and startup access, smaller and less effective

[1] Glass ceiling is a metaphor presented in an article from The Wall Street Journal during the 1980s. It stands for the invisible barriers women undergo when trying to pursue a career (See: Morrison, White, & Van Velsor, 1987).

networks, cultural attitudes and social discouragements the most common ones (OECD, 2017).

For Villasana, Alzaraz-Rodriguez & Alvarez (2016), since the 1980s female studies in entrepreneurship have surfaced in different areas, such as management, psychology, sociology and economics.

The literature defends that, despite the existence of previous research pointing to several similarities between genders, such as personal demographics, industry choices, financing strategies, growth patterns and governance structures differ when considering female business (Greene et al., 2003). These differences provide an opportunity scenario to study more about gender, once it makes such a unique aspect of entrepreneurship (Greene et al., 2003).

To comprehend the existing gap between men and women, it is relevant to analyze entrepreneurship's rates and data. Besides relying on the literature, the following data is based on reports such as GEM – Global Entrepreneurship Monitor, when it comes to global data and SEBRAE – (Serviço de Apoio as Micro e Pequenas) , when it regards to Brazil, amongst others.

Regarding rates, TEA rates, which correspond to the percentage of adults (age 18-64), who are either opening a business (considering nascent entrepreneurs the ones which have not paid more than three months wage), and also the ones with businesses older than three months up to forty-two months (considered early-stage business activity). According to GEM's latest report (2019), the average TEA rate for women is 10,2%, over three quarters the global rate for men's TEA.

The report also shows (GEM, 2019):

- The smallest gender gaps are shown in lower income countries (women's TEA is 80% higher than men's);
- Highest rates of TEA are concentrated in Sub-Saharan regions (21,8%) and Latin America (17,3%);
- The largest gaps are in high income countries, where women's TEA represent less than two third of men's.

According to GEM's women report, women showed lower confidence than men regarding the capability of having their own business and in no region whatsoever women present higher confidence than men (GEM, 2019). Globally, 43,4% of women reported

their belief of being capable of opening their business, while men reported 55,6% (GEM, 2019), moreover, men are 10% more likely to not fear failure when compared to women.

People start their own business due to two main reasons: a) they no longer have any other way to provide or b) they are pursuing business opportunities(GEM, 2019). Globally, 27% of women reported starting their own business over necessity compared to 21,8% of men (GEM, 2019). Complementarily, women have 20% likelihood to start their business over necessity than men (GEM, 2019).

Age wise, the data provided by GEM (2019) shows that women and men under age 35 are most active in starting business worldwide. The participation in entrepreneurship, men and women, peaks in the age 25-34 age.

The educational background of entrepreneurs also highlights existing gaps, considering global rates. GEM's report points the entrepreneurial activity rates go up with education for both genders, however, the gap tends to grow with it, especially considering the greater gap at the graduate level, where women's rate represents two-thirds of men when it comes to opening their business (GEM, 2019).

Significant factors regarding entrepreneurship are perceived capability of opening their business and intentions. According to the literature, the perception of an individual about his capability of performing certain behaviors influences in his attitude towards the act (Bandura, 1977).

According to GEM, the perception of having the skills to start a business, globally, are generally high: 75% globally, while men hold 84,2% and women 79,8%, in addition, it is not clear why these perception differences exist, however, women are less optimistic regarding starting up their own business when compared to men (GEM, 2019). When it comes to intentions, there is also a gap. Globally, women's intention rate is 17,6%, 4 points less than men's, considering the highest intention rates are in low income countries (37,8%), followed by middle income (21,3%) and high-income 12,6% (GEM, 2019).

In relation to established business, the lowest rates belong to MENA regions – 6,5% (Middle East and North of Africa), being the highest in Asia (9,1%) and lower in Latin America (6,3%), North America (5,7%) and Europe (5,4%) (GEM, 2019).

In respect of discontinuance, across 59 countries surveyed by GEM (2019), the average global rate is approximately 10% lower for women (2,9%) than men (3,2%). According to the report, women are known as stronger survivors due to their developed

skills, more conservative business strategy approach, the kind of sector they get in and the higher tolerance for modest profit margins. Several reasons can result in business discontinuance, such as lack of profitability and finance. GEM (2019) showed that women are more likely to cite lack of finance as a reason for discontinuance. However, regionally, women are less likely to cite lack of finance as a reason for business discontinuance.

Complimentarily, around the world, entrepreneurship is taken as a tool to empower women. It is easily perceived that literature attempts to show females' profile, and through comparisons to males, researchers try to find ways to improve and enhance entrepreneurial characteristics on women and take down gendered stereotypes. Several studies focus on evaluating differences between genders in regard to entrepreneurship, taking MENA region for example. In countries where women still struggle pursuing rights which are considered basic by rest of the world, such as working, driving or voting (IFC & World Bank, 2017), women entrepreneurs are far behind male rates. That, as argued by Bastian, Metcalfe & Zali (2019), is aggravated specially in countries where women live under more unfair conditions, due to gender-based discrimination (in regard to their rights, responsibilities and opportunities).

3.3.2 Female Entrepreneurship in Brazil

According to Madalozzo (2010), in Brazil, females' scenario participation in labor force in the 1940s represented 13% of total force, in the 1970s there has been an increase of 21% and 42% during the 1990s.

In recent report, SEBRAE has shown Brazil holds an impressive amount of 52 million entrepreneurs, in which men account for 28 million and women 24 million (SEBRAE, 2019b). In 2018, Brazil held the seventh position globally regarding female participation in early-stage business (SEBRAE, 2019b). Even though this number looks optimistic when compared to 1940s-1990s period (Madalozzo, 2010), SEBRAE shows that not every female entrepreneur actually becomes a business owner, presenting a 60% rate of withdrawal (SEBRAE, 2019b).

For Ramadani et al., (2014), female entrepreneurs have acquired recognition not only for being source of economic growth, but also for creating jobs (for themselves and

others), for providing different solutions to management and organizations, as well as to the exploitation of business opportunities. Moreover, female entrepreneurship has been often neglected in social sciences, once research, policies and programs usually tend to carry a “male stream” (Ramadani et al., 2014).

Even though the literature points that studies on female entrepreneurs have started in the mid-1970s, in Brazil, early studies date back to late 1990s and early 2000s (Gimenez et al., 2017; Krakauer et al., 2018; Yadav & Unni, 2016). Studies are presented with several approaches and focuses, however, first studies focused more on understanding entrepreneurial attributes and characteristics (Gimenez et al., 2017). More recently, studies approach entrepreneurial education, sustainable entrepreneurship, competences, gender differences and entrepreneurial practices (Gimenez et al., 2017).

For IBGE – Brazilian Institute of Geography and Statistics – familiar systems contribute to market participation and insertion, regarding women (with a motherhood role) that is even more challenging, once they may direct a lot of their time to take care of domestic tasks and people (IBGE, 2018b).

One important factor that might contribute for women’s decision-making process into deciding to work outside of their homes or even open a business is the possibility of supporting their children or the existence of accessible (meaning municipal, state and free) nursery schools and child care center that might receive children while moms work. A Canadian study showed that women usually hold on until their children reach school age to start studying again and pursue an entrepreneurial career (Breen & Leung, 2020).

In Brazil, as reported by the National Institute Educational Studies and Research (INEP) (2019), the number of children enrolled in nursery schools has considerably increased during the 2014-2018 period, as shown in Table 5:

Table 5: Amount of children's enrollment in nursery schools (2014-2018) (million)

Year	Nursery School
2014	2.897.928
2015	3.049.072
2016	3.238.894
2017	3.406.796
2018	3.587.292

Source: INEP, 2019.

According to INEP (2019), in 2018 approximately 8,7 million children were enrolled in nursery schools or pre-schools. This is especially important, since women can get this time to work, up-to-date by taking courses or qualifying themselves (Ramadani et al., 2014). In Chile, for instance, the government created the National Women Service, which is a Ministerial office that aims at being an organization for women policies and affairs (Ramadani et al., 2014). Besides promoting equal opportunities to women, the office also provides information, training, coaching, access to funding and free childcare and nursery centers for these women's children while they study or take care of their business (Ramadani et al., 2014).

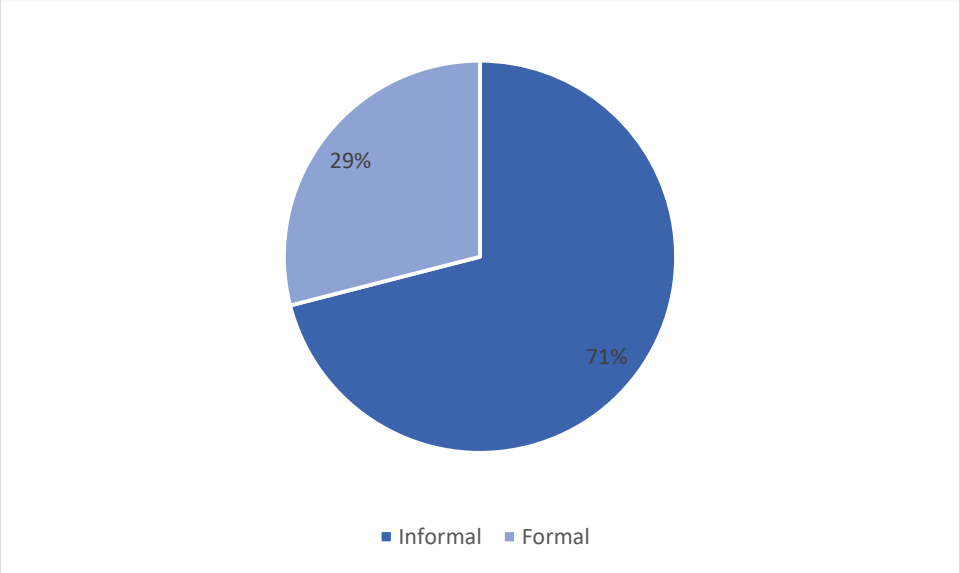
With reference to profiles, the reality in Brazilian scenario presents itself as an environment in which women have started their business over necessity more than men in the past eight years (SEBRAE, 2019b). Age wise, female business owners average age is 43,8 years old, while men are slightly older (45,3 years old – average) (SEBRAE, 2019b).

Access to financing is also a subject which accounts gender gaps, this is also considered to be a reason for business discontinuance, which rates at 7% in Brazil (SEBRAE, 2019b).

Two entrepreneurial profiles are identified by SEBRAE and PNADC: employer and self-employed (SEBRAE, 2019b). Either formally or informally, being an employer consists in exploring his/her own work as an entrepreneur and having at least one employee, while being self-employed means exploring his/her own work, with not any formal employee (IBGE, 2018a; SEBRAE, 2019a). In 2018, Brazilian stats identified 4,5

million employers and 23,9 million self-employed people (SEBRAE, 2019a). From this data, it is possible to gather information regarding informal entrepreneurs, as shown in the next figure (Figure 4).

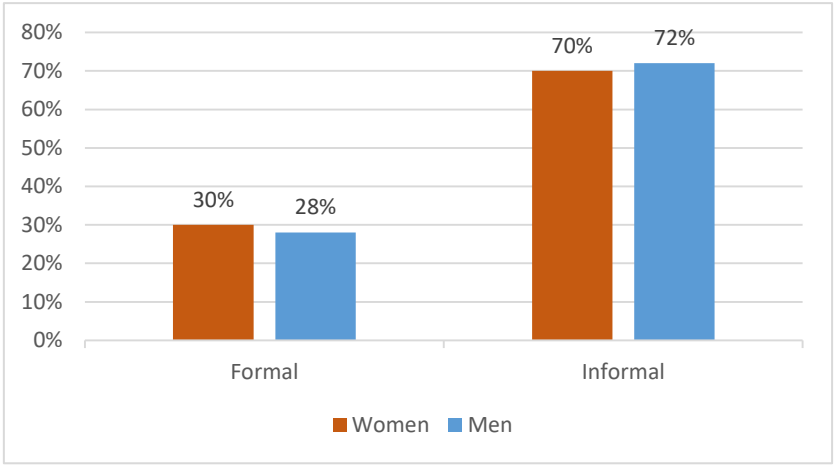
Figure 4: Informal data (entrepreneurs which have CNPJ) – Men and Women



Source: SEBRAE, 2019a.

Data also shows that formality increases according to profits and working hours (SEBRAE, 2019a). About gender, formal entrepreneurs are leveled in all Brazilian regions, except for the South, where women have got a higher level (44% against 38% of the other regions) (SEBRAE, 2019a). According to Figure 5, over two thirds of female entrepreneurs do not operate formally in the Brazilian context.

Figure 5: Brazilian Female operations – Formality vs. Informality



Source: SEBRAE, 2019b

Access to financing is an issue mentioned by entrepreneurs as a critical issue regarding continuance business and female access to finance is a public debate topic, once, globally, 16,2% of women entrepreneurs consider lack of capital as a reason for their business discontinuance (GEM, 2019). In Brazil, 7,1% of females cited lack of financing a reason that put their business at risk (GEM, 2019). Even though there is no conclusive research if women lack financial support due to their gender or business characteristics, such as: business size, industry segment or even personal credit history (GEM, 2019), in Brazil, 43% of businesses owned by men take bank loans, against 40% of companies owned by women (SEBRAE, 2019b). Moreover, women would have less access to better and more advantageous credit options than men and also pay more interest, even though, they present same default rates when compared to men (BACEN, 2018; SEBRAE, 2019b).

Based on data provided by the reports above, a summary of indexes on Brazilian female entrepreneurs' profile is portrayed on Table 6.

Table 6: Summary-Index on Brazilian female entrepreneurs' profile

Index	Comment & data
Amount of Female entrepreneurs	• 24 million
Average age	• 43,8 years old
Schooling	• Regarding attendance, women go to school during more time than men. • Female entrepreneurs attend more undergraduate courses and high school than men.
Business Discontinuance	• Females present a 7% rate.
Motivation to open a business	• In the past eight years, it was necessity driven.
Formality vs. Informality	• Most regions account with equal formality levels, except for the South, where women account for 44% of formality in entrepreneurship.
Access to financing	• 7,1% of females in business in Brazil cited it as an issue. • Women cite difficulties in getting financing access even though they show similar default rates as men.

Source: own authorship, adapted from GEM, 2019; IBGE, 2018b, 2019; SEBRAE, 2019b.

In order to provide further information on Brazilian entrepreneurship regarding females, a bibliometric study was conducted in three different databases: Scielo, Scopus and Web of Science in the period 1960-2020 The findings can be identified in Table 7.

Table 7: Bibliometric research about Female Entrepreneurship in Brazil

Data base	Key words	Type	Findings
Scielo	(mulher empreendedora) OR (empreendedorismo feminino) OR (empreendedorismo de gênero)	Article	28
Scopus	(women entrepreneurs OR female entrepreneurship OR gender entrepreneurship AND Brazil)	Article	11
Web of Science	(women entrepreneurs OR female entrepreneurship OR gender entrepreneurship AND Brazil)	Article	27

Source: Scielo; Scopus; Web of Science. Own authorship

The search performed on May 4th 2020 resulted in 66 results comprising Scielo, Scopus and Web of Science results. The processes followed after gathering the articles from the databases were: a) check for duplicated, b) read titles, abstracts, c) filter articles, which do not present compatibility with the topic of research, and d) rank and filter articles from journals classified from A1 to B2.

After checking for duplicates, the articles to be evaluated by title and summary were 50. After this, five articles were discarded due to incompatibility with the topic of research and after ranking by classification. The final number of articles found was 25. The bibliometric analysis enabled the possibility of gathering information on the type of researches done in Brazil regarding female entrepreneurship.

Literature on national female entrepreneurship is marked by important topics. It goes from motivations to open their own business (Machado et al., 2003), which can be mostly because of personal goals, also due to market opportunities, dissatisfaction with their jobs, credit and financial issues (Barber & Barber III, 2015; Barber III et al., 2016), fears (de Camargo et al., 2018; Ferreira et al., 2018), to formal and informal dilemma (Marques et al., 2018), amongst others.

Some researches performed comparisons among Brazil and other nations, such as Canada and France (Machado et al., 2003), Latin American and Caribbean countries (Villasana, Alcaraz-Rodríguez, et al., 2016; Washington & Chapman, 2014). When compared to Canada and France, Brazilian female entrepreneurs perform more service activities regarding food, teaching and artisan products production, while French women

open their business to provide services as real estate agents, sales assistant, accounting and consulting, Canadians, in turn, work more with teaching, logistics and publicity (Machado et al., 2003).

It is known that women carry several demands (being a wife, a housewife and also a mother). Having a business or a career is a factor that adds up to existing demands and may generate conflict, being the family-work conflict pointed as the most difficult one to solve (Jonathan & Silva, 2007). According to Jonathan & Silva (2007), this conflict may reach balance when women are able to create spaces and learn how to divide and share time to specific activities.

Villasana et al. (2016) argue that in Latin America women struggle with several issues regarding segmentation and difficulties of formalizing their business. Evaluating attributes and characteristics (creativity, problem and risk management and self-confidence) in nine Latin American countries (including Brazil), self-confidence is a characteristic that presented equal results for both men and women, while problem management, risk management and creativity showed significant differences regarding females. The authors defend that entrepreneurial education can act as a mechanism to motivate women to see entrepreneurship as a viable option of employment and also diminish gender stereotypes (Villasana et al., 2016).

Peñaloza, Diógenes & Souza (2008) argue that, even though several women get into the labor market in less favorable positions and in typically female jobs, holding a higher education degree may turn this scenario and also enable opportunities to pursue an entrepreneurial career. For the authors, several factors influence women into getting in an entrepreneurial career or not, as they are immediately associated to taking care of the house, children and family, any issue in this environment may affect their working hours. Peñaloza *et al* (2008) results show that among 370 students (54,6% females), only 14,4% of females have intentions to pursue entrepreneurship, while men present considerably more intentions (32,1%), moreover, this research also shows that women would prefer to pursue a more stable career option (such as a public job – 45,5%).

Socially, men and women build different types of relationships. While men grow more relationships outside the family circle, women tend to be more likely to build deeper relationship among friends and family members (Hanson & Blake, 2009). This factor can influence how engaged women and men would be in entrepreneurship due to the influence these people could have on their lives, also as males usually grow relationships with a

larger variety of people from different areas, which allows different personal experiences, this could lead to entrepreneurship (Hanson & Blake, 2009; Vale et al., 2011b). That fact is due to once the group of people an individual is surrounded may be the type of people they would have a business partnership with (Vale et al., 2011b).

Regarding financial issues and taking risks, in a comparison among Brazilian and North American university students, Barber III evaluates behavior of entrepreneurs and wage earners and how they behave towards risk-taking (2015). The study shows Brazilian entrepreneurs show less initiative to engage in risky business than Americans, and it also presented differences between genders, by showing males (in both countries) tend to risk more, moreover, married people (both genders) risk less than singles (Barber III, 2015a).

Fear is a factor often analyzed when it comes to entrepreneurship. Within female entrepreneurship, Jonathan (2005) evaluated this aspect and concluded that her sample – which had 49 female entrepreneurs from Rio de Janeiro – presented positive characteristics, in which women showed a fearless profile and also passion and personal identification towards their business. Fear and concerns mix with achievements, however, it emerges when it comes to growing their business or when they think about failing or the need of closing in case of bankrupt (Jonathan, 2005).

Authors researched on business creation and gender, such research resulted in understanding that women tend to spend more time planning and on the decision-making process (Melo et al., 2019). Besides, Melo *et* al. (2019) were able to denote that number of children also influences the business creation process, once mothers often search for a flexible work journey to balance work/life. Complimentarily, De Camargo et al. (2018) mapped that women experienced fears regarding the future, financial aspects and concerning their business sector (2018).

According to Appendix A, it is possible to acknowledge some aspects regarding research in Brazil. Researches opportunities were identified during the bibliometric search, once they did not offer analysis at a national level evaluating aspects, such as self-efficacy, intentions, university environment and gender altogether - mostly being done by comparing specific regions or countries not in the topic of this research and not with all elements. Thus, the present research can provide further data regarding these aspects, in an attempt to fill in this gap and contribute with Brazilian theoretical framework.

Taking in consideration the key words map in Appendix B – which has created by Vosviewer – it enabled information gathering from three databases with no filter, it is possible to notice some thematic relationship among the topics. Brazilian studies connect entrepreneurial attitude, career transition and business formalization; motivation and barriers; gender and microcredit and gender towards network and empowerment as well. The studies did not relate female entrepreneurship to the university support or entrepreneurial characteristics as well, although Appendix A demonstrates two studies performed in the university environment.

Regarding university support, the effect of self-efficacy on intention and relationship between a supportive university and self-efficacy observed by the lenses of gender, this research proposes the following hypotheses:

H3. There are differences in the relationship between entrepreneurship supportive university environment, self-efficacy and entrepreneurial intention regarding gender.

H3a. There are differences in the relationship between self-efficacy and entrepreneurial intention regarding gender.

H3b. There are differences in the relationship between entrepreneurship supportive university environment and self-efficacy regarding gender.

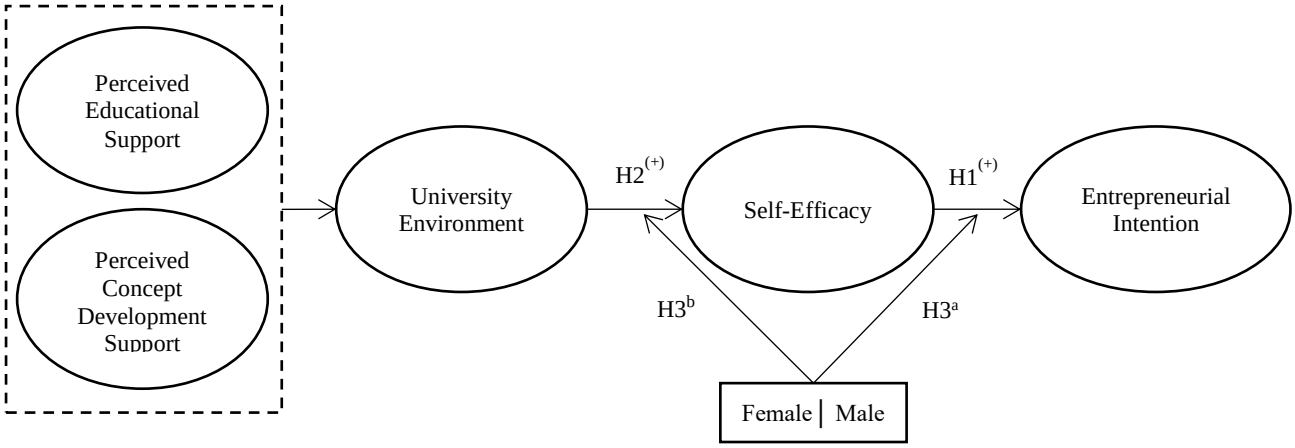
4 RESEARCH METHODOLOGY

This chapter will address the procedures performed in order to achieve the purposes of this research. It presents as (4.1) Proposed Model, (4.2) Methodological Aspects and (4.3) Sample and Questionnaire.

4.1 Proposed Model

Based on the theoretical framework presented previously, a conceptual model was developed in order to attend this research's purpose, which is to to analyze the relationship between the entrepreneurial characteristics (self-efficacy and intention) and the university environment, and the existence of gender differences regarding these relationships, as presented in Figure 6.

Figure 6: Conceptual Model Proposal



Source: Own authorship

According to Figure 6, the proposed model states that a supportive university environment affects self-efficacy. Self-efficacy, for that matter, is stated as an influencer of the entrepreneurial intention. Moreover, it presents a gender multigroup analysis.

All hypotheses and conceptual basis can be found in Table 8 below.

Table 8: Conceptual model's hypotheses

Hypotheses	Description	Conceptual basis
H1	Undergraduate student's self-efficacy has a positive influence on undergraduate student's entrepreneurial intention.	Brunel, Laviolette & Lefebvre(2020); Moraes et al. (2019); Saeed et al., (2015) ; Pihie & Bagheri (2013).
H2	A supportive university environment for entrepreneurship has a positive influence on undergraduate student's self-efficacy.	Moraes et al. (2019); Saeed et al., (2015).
H3	There are differences in the relationship between entrepreneurship supportive university environment, self-efficacy and entrepreneurial intention regarding gender.	Adapted from Wilson et al (2007); Dabic, Daim, Bayraktaroglu, Novak, & Basic (2012).
H3a	There are differences in the relationship between self-efficacy and entrepreneurial intention regarding gender.	Adapted from Wilson et al. (2009); Raposo & do Paço (2011).
H3b	There are differences in the relationship between entrepreneurship supportive university environment and self-efficacy regarding gender.	Adapted from Dabic et al., (2012); Raposo & do Paço (2011)

Source: own authorship.

4.2 Methodological Aspects

The procedure to achieve the objectives of this research adopted a quantitative approach, with the use of Partial Least Squares – Structural Equation Modeling (PLS-SEM), as previously suggested by Hair et al. (2017). This approach was chosen once it has the capacity of examining the prediction and explanation of the constructs (Hair et al., 2017) also providing a common point in-between confirmatory analysis and path modeling (Hair et al., 2017).

The use of PLS-SEM is justified by the presentation of reflective and formative indicators. It also presents two hierarchical latent variables, being First Order Constructs and Low Order Constructs (Ringle et al., 2018). First Order Constructs are reflective indicators, while the Second Order Construct is formative. In this research, the University Environment (formative) will mediate the influence of the First Order Constructs (perceived educational support and perceived concept development support) on Self-Efficacy.

In order to accomplish the objectives for this research, the research methodology stages is detailed below and also shown in Figure 7:

Stage 01: Theoretical framework – in this stage, a detailed review of literature and reports was done in order to approach all hypotheses and their relations.

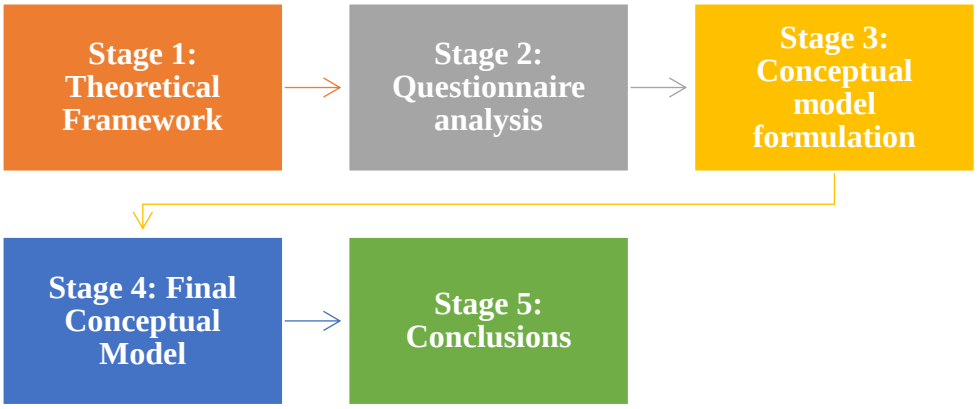
Stage 02: Questionnaire – in this stage, the questionnaire (which was detailed in chapter 4.3.2 Questionnaire), will be analyzed.

Stage 03: Conceptual Model Analysis – in this stage, the conceptual model will be formulated based on the literature review and the questionnaire questions.

Stage 04: Final Model – in this stage, after necessary adjustments, a final model will be done.

Stage 05: Conclusions – in this stage, it will be possible to evaluate the hypotheses confirmations (or not).

Figure 7: Research Methodology Stages



Source: own authorship

The methodological procedures will be described – in depth – in Chapter 5.

4.3 Sample and Questionnaire

This chapter provides with Sample related information (4.3.1) and the Questionnaire accounted for this research (4.3.2).

4.3.1 Sample

This research adopted a database developed by ENDEAVOR in partnership with SEBRAE[2] (*Serviço Brasileiro de Apoio às Micro e Pequenas Empresas*) and the Data Popular Institute.

The data collection was performed in Brazilian territory in the year 2016 during April and May. The survey totalizes 2230 respondents and they were divided by Endeavor into three groups: entrepreneurs, potential entrepreneurs and non-entrepreneurs. For this research, the chosen dataset comprises a sample with 467 survey respondents from 70 Higher Education Organizations divided regionally (Endeavor, 2016) and students belonged to different fields (Humanities, Exact sciences and Health). The surveys were applied probabilistically, through *intercept methodology*, which consists in a random collection performed in person and the dataset referred to the *potential entrepreneurs.* The final sample comprises the following characteristics as it can be seen in Table 9:

Table 9: Sample information

Data	**Information**	**Complementary Information**
Average Age	25 years old	-
City	47	-
State	17	Acre, Amapá, Bahia, Brasília, Ceará, Goiás, Mato Grosso, Mato Grosso do Sul, Minas Gerais, Pará, Paraná, Pernambuco, Rio de Janeiro, Rio Grande do Sul, Roraima, Santa Cataria and São Paulo.
University	• Public – 32% • Private – 68%	-
Gender	• Male – 60% • Female – 40%	-

Source: own authorship.

4.3.2 Questionnaire

The questionnaire excerpt used for this research belongs to the *potential entrepreneur's* questionnaire, once it matches the purposes of this research.

[2] Brazilian Micro and Small Business Support Service

Table 10 shows the construct, questions and references, being divided amongst Self-efficacy, University Environment and Entrepreneurial intention. The measurement for each construct are stated below:

- Self-efficacy: Likert scale responses were used, considering 1 (totally disagree) to 5 (totally agree), in which the students responded how much they`d agreed with the statements.
- University Environment:
  - Perceived Educational Support is measured by a Likert scale responses from 1 (totally dissatisfied) to 5 (very satisfied). The students answered how satisfied they were with the items regarding the *preparation for entrepreneurship*.
  - Perceived Concept Development is measured by a Likert scale responses from 1 (totally disagree) to 5 (totally agree). The students answered how much the items were essential to *encourage entrepreneurship*.
- Entrepreneurial intention: Likert scale responses were used, considering 1 (totally disagree) to 5 (totally agree), in which the students answered how much the items were essential to *encourage entrepreneurship*.

Table 10: Questionnaire information by construct, indicator, question and conceptual basis

	Questions	Conceptual Basis
Self-efficacy[a]	(SE1) I always manage to solve difficult problems if I try hard enough	Adapted from Liñán & Chen (2009)
	(SE2) I can keep focus on medium-long term goals	Adapted from Moraes et al. (2018)
	(SE3) I am confident I could effectively handle unexpected situations	Adapted from Zhao et al (2005)
	(SE4) When I face a problem, I can usually find more than one solution	Adapted from Krakauer et al (2018)
University Environment	**Perceived Educational Support[b]**	Adapted from Saeed et al. (2015)
	(PES1) Entrepreneurship disciplines	
	(PES2) Student Organizations	
	(PES3) Makerspaces and Fablabs	
	(PES4) Entrepreneurship events	
	(PES5) Alumni programs	
	Perceived Concept Development Support[c]	
	(PCD1) Your major	
	(PCD2) Entrepreneurship disciplines	
	(PCD3) Extracurricular activities related to entrepreneurship	
	(PCD4) Business ideas competition	
	(PCD5) Belonged to a student organization	
	(PCD6) University environment/culture	
Entrepreneurial Intention[a]	(EI1) Often I consider becoming an entrepreneur	Zhao et al (2005)
	(EI2) I would like to see myself as an entrepreneur	Adapted from Zhao et al (2005)
	(EI3) Becoming an entrepreneur is an important part of who I am	Adapted from Zhao et al (2005)

Note 1: [a] Likert scale responses from 1 (totally disagree) to 5 (totally agree). The students responded how much they agreed with the statements.
Note 2:[b] Likert scale responses from 1 (totally dissatisfied) to 5 (very satisfied). The students answered how satisfied they were with the items regarding the *preparation for entrepreneurship*.
Note 3: [c] Likert scale responses from 1 (totally disagree) to 5 (totally agree). The students answered how much the items were essential to *encourage entrepreneurship*.

5 RESEARCH ANALYSIS

Initially, Exploratory Factor Analysis (EFA) was used to identify whether the indicators have correlation among latent variables (factors), with SPSS software. The method chosen to determine the factors was principal component analysis with the oblique rotation method. It is recommended that the load factor of each indicator achieves a value higher than 0.70 (Hair et al., 2009). In addition, it is expected that there will be difference of factorial load higher than 0.20 in adjacent constructs and that the commonality of each indicator has a value higher than 0.50. All the values are within those established by the authors (Table 10).

After that, indicators' analysis was conducted by a correlation study among the items and corrected item-total correlations (CITC), which measures the correlation among items of the same factor, determining to which extent indicators like that share the same meaning (Churchill, 1979). Items should be eliminated with CITC if the value was below to 0.30 (Simsion, 2007). Table 11 shows the CITC values and all values are adequate.

The Bartlett's sphericity test was also conducted with a null significance value in conjunction with calculation of the measure of adequacy of the sample Kaiser-Mayer-Olkin test, whose index was equal to 0.850, values considered satisfactory for further analysis (Hair et al., 2009). Cronbach's alpha was analyzed to verify the internal consistency of constructs (Table 1) and all values are higher than 0.70, considered acceptable (Hair et al., 2017; Nunnally & Bernstein, 1994).

No indicator was eliminated by the EFA and the four constructs were adequately demonstrated.

Table 11: Exploratory Factor Analysis

Questions	Mean	Standard Deviation	Components				CICT	Cronbach's Alpha
			1	2	3	4		
1) I always manage to solve difficult problems if I try hard enough [a]	4.266	0.790	0.016	0.237	0.054	**0.743**	0.240	0.841
2) I can keep focus on medium-long term goals [a]	4.127	0.792	0.053	0.395	0.104	**0.696**	0.304	0.839
3) I am confident I could effectively handle unexpected situations [a]	4.009	0.855	0.170	0.407	0.145	**0.705**	0.387	0.836
4) When I face a problem, I can usually find more than one solution [a]	4.078	0.802	0.040	0.405	0.120	**0.635**	0.292	0.840
5) Entrepreneurship disciplines [b]	3.194	1.204	0.268	0.033	**0.804**	0.141	0.498	0.830
6) Student Organizations [b]	3.242	1.110	0.227	0.094	**0.783**	0.129	0.435	0.834
7) Makerspaces and Fablabs [b]	3.129	1.003	0.326	0.017	**0.802**	0.156	0.530	0.829
8) Entrepreneurship events [b]	3.160	1.112	0.342	0.059	**0.825**	0.032	0.530	0.829
9) Alumni programs [b]	2.890	1.051	0.351	0.008	**0.792**	0.034	0.505	0.830
10) Your major [c]	3.795	1.089	**0.613**	0.053	0.216	0.452	0.465	0.832
11) Entrepreneurship disciplines [c]	3.267	1.225	**0.790**	0.052	0.383	0.073	0.565	0.826
12) Extra curricular activities related to entrepreneurship [c]	3.436	1.178	**0.781**	0.114	0.296	0.025	0.519	0.829
13) Business ideas competition [c]	3.297	1.206	**0.807**	0.118	0.282	0.040	0.530	0.828
14) Belonged to a student organization [c]	3.000	1.293	**0.735**	0.082	0.324	0.022	0.483	0.831
15) Your university [c]	3.596	1.160	**0.708**	0.092	0.323	0.326	0.526	0.829
16) Often I consider becoming an entrepreneur [a]	4.230	0.829	0.061	**0.858**	0.028	0.375	0.293	0.840
17) I would like to see myself as an entrepreneur [a]	4.307	0.793	0.098	**0.847**	0.029	0.383	0.288	0.840
18) Becoming an entrepreneur is an important part of who I am [a]	4.154	0.842	0.122	**0.839**	0.044	0.381	0.331	0.838

Source: own authorship.

Note 1: Extraction Method was Principal Component Analysis

Note 2: [a] Likert scale responses from 1 (totally disagree) to 5 (totally agree). The students responded how much they agreed with the statements.

Note 3:[b] Likert scale responses from 1 (totally dissatisfied) to 5 (very satisfied). The students answered how satisfied they were with the items regarding the *preparation for entrepreneurship*.

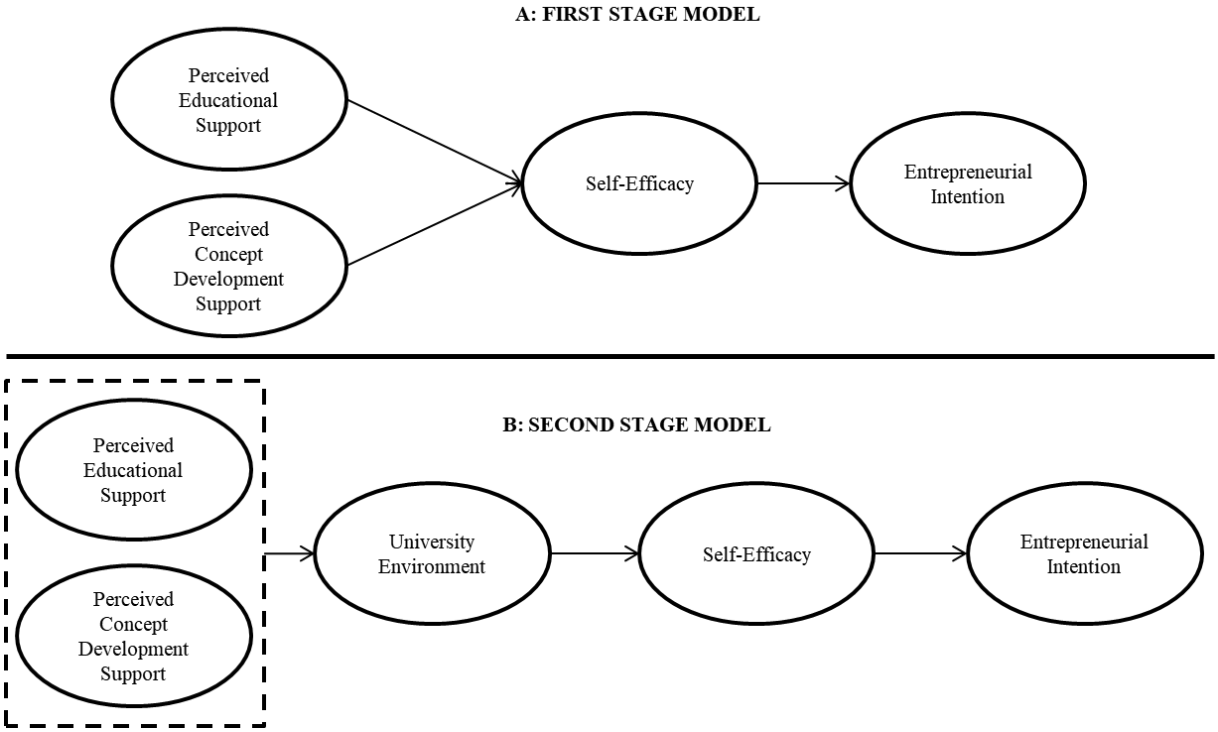
Note 4: [c] Likert scale responses from 1 (totally disagree) to 5 (totally agree). The students answered how much the items were essential to *encourage entrepreneurship*.

Once the EFA was done, we began the analysis of the research's conceptual model. It presents a second order and two reflective indicators. Thus, the model was tested by the structural equation modeling (SEM) technique, since traditional SEM techniques are adequate to test hierarchical models (Brady & Cronin, 2001). In this case, the relationship between perceived educational support and perceived concept development support with the university environment does not mean dependence but rather a hierarchy (Becker et al., 2012), since the entrepreneurship supportive university environment does not exist without both constructs.

The relationships of the model were estimated using the PLS-SEM method using the SmartPLS 3 software (Ringle et al., 2015). Due to the conceptualization and operationalization of the university environment as a formative construct of second-order level, the research model is classified as a reflexive-formative model of latent hierarchical (Becker et al., 2012; Chin, 1998). The first order level constructs are reflexive, whereas the second order level construct is formative and completely mediates the influence of the first order level constructs on the self-efficacy and entrepreneurial intention constructs

In order to estimate the model parameters, the two-stage approach was chosen (Becker et al., 2012; Hair et al., 2018). In the first stage (Figure 8-A), the latent variable scores of the first order level constructs were obtained in a model that did not consider the construct of the second order level. In the second stage (Figure 8-B), the latent variable scores obtained in the first stage were used as indicators for the entrepreneurship supportive university environment construct. The two-stage approach has the advantage of estimating a more parsimonious model, since there is no need to present the first order level constructs (Hair et al., 2018). Besides, it is more appropriate when the researcher's interest is only in the relationships that start from the second order level construct (Becker et al., 2012), which is the case of this model.

Figure 8: Two stage approach



Source: own authorship.

5.1 Evaluation of reflexive measurement model

The evaluation of the second stage model started with the evaluation of the reflective model. The internal consistency, composite reliability, convergent validity and discriminant validity of the reflexive constructs were evaluated with SmartPLS 3 software (Ringle et al., 2015). Internal consistency was assessed by Cronbach's alpha. Cronbach's alpha indicates the correlation between the indicators associated with each construct. Cronbach's alpha values between 0.70 and 0.90 are considered satisfactory for studies in more advanced stages (Fornell & Larcker, 1981; Hair et al., 2017; Nunnally & Bernstein, 1994).

The composite reliability assesses whether the indicators associated with each construct actually represent them (Bagozzi & Yi, 1988). The composite reliability values should be at least 0.70 to indicate that the items are sufficient to represent their respective constructs (Hair et al., 2017). The average variance extracted (AVE) is one of the criteria for testing the convergent validity of a construct (Fornell & Larcker, 1981). The AVE represents the mean percentage of the variance of the indicators free from measurement error. AVE values higher than 0.50 are acceptable to indicate that a large amount of the mean variance of the indicators is captured by each factor and not by the measurement error (Hair, Ringle & Sarstedt., 2011). All the mentioned values are within the ones established by the authors (Table 12).

Finally, the discriminant validity evaluates how distinct two similar constructs are. To confirm the discriminant validity of the model, the square root of AVE that is presented on the diagonal of the correlation matrix (Table 12) should present values higher than the correlation with other constructs (Hair et al., 2017). The square root of AVE values shown in Table 12 (diagonal values in bold) suggest that there is no relationship between the indicators associated to their respective construct with other constructs of the model.

Table 12: Summary of the Evaluation of Measurement Models

Constructs	SE	EI	UE
Self-Efficacy	**0.740**		
Entrepreneurial Intention	0.541	**0.876**	
University Environment	0.265	0.134	**FORMATIVE**
Cronbach's Alpha	0.726	0.849	FORMATIVE
Composite Reliability	0.828	0.909	FORMATIVE
Average Variance Extracted (AVE)	0.548	0.768	FORMATIVE

Source: own authorship.

5.2 Analysis of formative measurement model

The convergent validity, collinearity, and statistical significance and relevance of the formative construct (entrepreneurship supportive university environment) were also evaluated with SmartPLS 3 software (Ringle et al., 2015). The convergent validity was estimated from the value of the formative construct's path coefficient Path coefficient values greater than 0.8 provide support for the convergent validity of the formative construct (Hair et al., 2017). The value of the second-order level construct path coefficient, entrepreneurship supportive university environment, was 0.910, supporting the convergent validity of the construct. The value of the variance inflated factor (VIF) was used to assess the collinearity of the construct. If 0.2 <VIF <5 the collinearity of the construct is adequate (Hair et al., 2017). The VIF values for all first-order level constructs were within the acceptable range. To evaluate the statistical significance of the university environment construct, the bootstrapping technique was used. Initially, the relative importance (outer weight coefficient) of each item was analyzed. When the relative importance is significant, there is empirical support for keeping the indicator in the model (Hair et al., 2017). When relative importance is not significant, it is necessary to evaluate the absolute importance (outer loading coefficient), because if absolute importance is significant, indicators should be kept in the model (Hair et al., 2017). Following the recommendations of Hair et al. (2017), all items were retained in the model.

5.3 Evaluation of structural model

The structural model was evaluated to provide consistent evidence that the university environment is positively related to students' self-efficacy and that the students' self-efficacy is positively related to entrepreneurial intention. The criteria used to evaluate the structural model were: collinearity, significant factor loadings, structural coefficients and

coefficient of determination of the model (r^2). All criteria were estimated with SmartPLS 3 software (Ringle et al., 2015).

To evaluate the collinearity, the values of the variance inflated factor (VIF) for each subpart of the structural model were analyzed. All values are within the range established by Hair et al. (2017), being below 5. The values of the significant factor loadings and the structural coefficients were obtained by the bootstrapping technique. For this, Student's t-statistic analyzes the hypothesis that the significance of path coefficients are equal to zero. Values of T-value higher than 1.96, at a significance level equal to 5%, reject the null hypothesis and indicate that the path coefficients is significant (Efron & Tibshirani, 1998; Hair et al., 2017). Table 13 presents the T-values for the model relationships.

Table 13: Coefficients of the Structural Model – Between Constructs

Path	Sample Mean	Standard Deviation	T-Statistics	P-Values
Self-Efficacy -> Entrepreneurial Intention	0.541	0.037	14.606	0.000
University Environment -> Self-Efficacy	0.265	0.046	5.709	0.000

Source: own authorship.

The results indicate that the relationships between self-efficacy and entrepreneurial intention and between university environment and self-efficacy are significant.

To evaluate the coefficient of determination (r^2), it were used the studies of Cohen (1988) and Faul et al. (2007), which determine that f^2 values equal to 0.02, 0.15 and 0.35 are considered, respectively, as small, medium and large effects. These values of f2 represent values of r2 equal to 2%, 13% and 25%, respectively. According to the analyses, the entrepreneurial intention construct presented a r^2 of 0.292, considered high, and the self-efficacy construct presented a r^2 of 0.070, considered between small and medium.

Besides evaluating the magnitude of r^2 values as a criterion of predictive accuracy, it is necessary to evaluate the value Q^2, which is an indicator of the model's predictive relevance. The Q^2 value uses a blindfolding procedure for a certain omission distance, which is iterative and that repeats until each data point has been omitted and the model re-estimated. Specifically, when a PLS-SEM shows predictive relevance, it accurately predicts the indicator data points in the reflexive measurement models. Table 14 shows de r^2, adjusted r^2 and Q^2.

Table 14: Results of r^2, adjusted r^2 and Q^2

Path	r^2	R Square Adjusted	Q^2
Self-Efficacy	0.070	0.068	0.035
Entrepreneurial Intentio	0.292	0.291	0.209

Source: own authorship.

For SEM models, values of Q^2 higher than zero indicate the predictive relevance of the path model. In the case of this study, the values are considered adequate (Hair et al., 2017).

In order to test if there are differences between the relationships according to gender (male or female), multigroup analyzes were performed, according to the suggestions of Hair et al. (2018). Table 15 presents the analysis' results of the constructs' significant relationships among these groups of respondents.

Table 15: Analysis of relationships according to gender

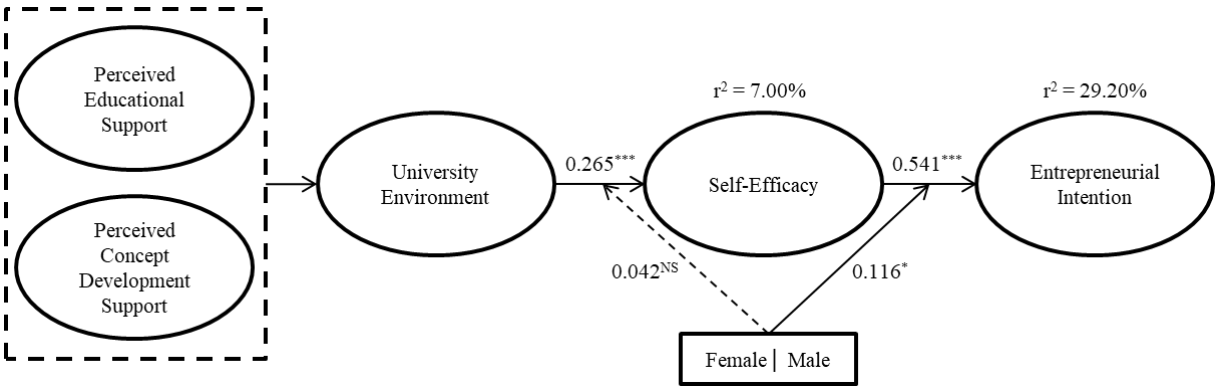
Path	Path Coefficients - difference (Female - Male)	P-Values
Self-Efficacy -> Entrepreneurial Intention	0.116	0.040
University Environment -> Self-Efficacy	0.042	0.671

Source: own authorship.

According to the results (Table 15) it is possible to affirm that there are significant differences in the relationships between the constructs according to the gender. The difference lies in the relationship between self-efficacy and entrepreneurial intention, and this effect is more strongly positively in the case of female respondents.

The model resulting from research is shown in Figure 9.

Figure 9: Complete empirical model



Source: own authorship.
Note: * = significant at 5%; ** = significant at 1%; *** = significant at 0.1%; NS = not significant.

The synthesis of this study hypotheses tests is shown on Table 16.

Table 16: Synthesis of the Study Hypotheses Tests

Hypotheses	Description	Results
H1	Undergraduate student's self-efficacy has a positive influence on undergraduate student's entrepreneurial intention.	Confirmed
H2	A supportive university environment for entrepreneurship has a positive influence on undergraduate student's self-efficacy.	Confirmed
H3	There are differences in the relationship between entrepreneurship supportive university environment, self-efficacy and entrepreneurial intention regarding gender.	Confirmed
H3a	There are differences in the relationship between self-efficacy and entrepreneurial intention regarding gender.	Confirmed
H3b	There are differences in the relationship between entrepreneurship supportive university environment and self-efficacy regarding gender.	Not Confirmed

Source: own authorship.

6 DISCUSSION

The main purpose of this research was to analyze the relationship between the entrepreneurial characteristics (self-efficacy and intention) and the university environment, and the existence of gender differences regarding these relationships. As the university support is believed to enable individuals' entrepreneurial behavior (Saeed et al., 2015) self-efficacy presents itself as a motivator role, which might enhance individuals' entrepreneurial intentions (Saraih et al., 2018; Zhao et al., 2005), a conceptual model was presented with the objective of integrating the constructs and exploring gender differences regarding the relationships through a multigroup analysis.

Results confirmed the positive effect undergraduate students' self-efficacy has on their entrepreneurial intention (H1). This result corroborates with findings in previous studies on the influence of self-efficacy on entrepreneurial intentions (Brunel et al., 2020; Moraes et al., 2019; Pihie & Bagheri, 2013; Saeed et al., 2015) which suggested self-efficacy had a motivator role towards intentions. As for Bandura (1977), once individuals tend to avoid situations they consider beyond their capability, a positive self-efficacy perception enables behavior towards entrepreneurship. Once again, self-efficacy is proven to be a great influencer of entrepreneurial intentions, reinforcing the necessity of developing it in possible entrepreneurs, which can be done through entrepreneurship support from universities.

A supportive university environment for entrepreneurship has also shown a positive influence on undergraduate students' self-efficacy (H2), which means students perceive their university environment (such as disciplines, events, workshops and other activities related to entrepreneurship) as a link to start a new venture, preparing them and providing knowledge, presenting itself as a motivator role and also enhancing their capability perception. It shows consistence with previous research which similarly showed universities provided support and needed skills for students who would be likely to engage in opening their own business (Moraes et al., 2019; Vodă & Florea, 2019; Zhao et al., 2005).

Results have also presented significant gender differences in the relationship between self-efficacy and entrepreneurial intention. The effect is stronger perceived in the case of female respondents.

Even though results for both males and females present self-efficacy's impact on entrepreneurial intentions, the impact is more strongly perceived by women. This result contributes to the debate on the importance of self-efficacy development in women (Pihie & Bagheri, 2013; Wilson et al., 2007). In this context, the university environment can be considered an aid mechanism to develop female students' self-efficacy, once that it could lead to greater intentions and it is more likely to generate more female entrepreneurs in the future. In accordance to this research's result and to previous literature, in order to improve females' intention, entrepreneurship education and support should focus on not only providing with knowledge to students but also working on how they perceived the knowledge they gain (Chowdhury & Endres, 2005). Thus, developments should be made on how women perceive the knowledge achieved during university period and also on how this affects their self-efficacy, so that greater intentions could be achieved.

On the other hand, when testing the existing differences in the relationship between entrepreneurship supportive university environment and self-efficacy regarding gender (H3b), the hypothesis was not confirmed. This result means that, even though the university support positively affects undergraduate's self-efficacy (H2), both male and female students perceive that the entrepreneurship supportive university environment develop their self-efficacy in a low way, and gender differences, for instance, did not present a significant different result. This result differs from previous researches that suggested women are the most benefited considering an entrepreneurship supportive university environment (Volkmann et al., 2009; Wilson et al., 2007), on the contrary to those researches, another suggested that an entrepreneurship university environment could only eliminate the disadvantage of not holding a degree (Ward et al., 2019).

In sum, the relationship between the university environment support for entrepreneurship influences significantly undergraduate's self-efficacy, in spite of being significant, this influence is also small, that is to say, students perceive the university environment influence on their self-efficacy, but this influence is perceived in a low manner. Concerning gender differences in this relationship, results show it was not significant.

By not presenting a significant difference regarding genders, it does not mean the university support does not influence genders differently, especially if we consider that the university environment's impacted on undergraduate's self-efficacy and stronger intentions where perceived by women who presented higher self-efficacy. Which means

that this difference in the impact of the university environment between genders can be indirect.

Despite hypothesis H3b not being confirmed, it is possible to account for OECD suggestion that it is essential that universities develop environments in which women can develop their skills and diminish stereotypes and eliminate the masculine view of entrepreneurship in some fields (OECD, 2017).

Considering previous studies that relate self-efficacy differences in men and women (Dabic et al., 2012; Wilson et al., 2007) and women seem to be more concerned about their self-efficacy than men (Dabic et al., 2012), it is urgent to develop a strategy towards its development. As for this dissertation's sample presented a stronger positive difference on women's self-efficacy perception towards intentions, a way to improve females' participation in entrepreneurship is through self-efficacy enhancing programs, although for this sample the university support did not present itself as a construct which presented different impact on women's perception. In agreement with Endeavor (2016), it is necessary to comprehend what stimulates students, in order to work on it and develop universities and professors to overcome such challenges.

The findings also enabled to respond to the research question, which is "*What are the differences between genders regarding entrepreneurial characteristics and in the university environment support evaluation to entrepreneurship*?" The difference between genders lies in females' self-efficacy perception. Women who responded to the questionnaire showed higher entrepreneurial intentions when their self-efficacy was higher. On the contrary to previous suppositions, although the university support was confirmed as a positive influence of self-efficacy, there was no significant difference regarding gender perceptions of the university environment support evaluation to entrepreneurship.

In short, this research explored entrepreneurship through a gendered perspective, by evaluating literature and reports that shed contributions to the field and also by analyzing the university environment and entrepreneurial characteristics selected for this research, which were self-efficacy and intention. In addition, it proposed a conceptual model to evaluate the relations among the constructs and tested the proposed hypotheses**.**

7 FINAL REMARKS

Although entrepreneurship is often linked to a masculine career, *Female* Entrepreneurship in Brazil and in the world has developed a lot in the last decades. Several improvements have been made and numbers are starting to show improvements, which drew attention of scholars. The university is considered to be an important tool to enhance entrepreneurial characteristics, so several studies have focused on developing a better understanding about the support for entrepreneurship the university environment provides. As there is an unfilled gap regarding female entrepreneurship, especially considering Brazil, this research sought to contribute to this debate by analyzing the relationship between the entrepreneurial characteristics (self-efficacy and intention), the university environment and the existence of gender differences regarding these relationships.

This study carries out both theoretical and practical contributions. Theoretical contributions lie on the conceptual model which this research resulted. As bibliometric search presented, few research focused on the aspects approached by this research in Brazil, specially altogether and with a gender multigroup analysis, so the model offers a perspective yet not taken into the Brazilian entrepreneurship stem of research. Practical contributions could be taken out of this dissertation regarding self-efficacy and intentions. As for women self-efficacy is more important and it impacts more positively on their intentions, this shows a path to be pursued in respect to university environment entrepreneurship support strategies, in order to enhance females' self-perception of their self-efficacy.

In addition, considering the research gaps found, this research offers enlightenment on Female Entrepreneurship along with entrepreneurial characteristics (self-efficacy and intention) and the university environment support for entrepreneurship. It sheds light to the literature, by resuming found literature on *Female Entrepreneurship* and also by evaluating Brazilian scenario regarding female perceptions on the university environment and self-efficacy.

This research does not go out without limitations. Thus, it is possible to highlight the use of a secondary database, which offered a limited view of the constructs hereby analyzed. Moreover, by evaluating perception conditions, students' self-evaluation may not offer conditions to better comprehend higher education organizations conditions.

Several paths for future research can be pointed out. As this research has shown in the Bibliometric study, Entrepreneurship studies focusing on females by analyzing entrepreneurial characteristics is yet understudied in Brazil, hence, this could lead to opportunities to fill in this gap and explore different perspectives. To do so, future research may analyze other entrepreneurial characteristics, regional aspects and also by contrasting students' from public and private universities. This could also be developed by assessing the same database set used by this research. In this field, deeper assessments can also be developed through qualitative research in both male and female perceptions on traditional gender occupations, to comprehend deeply the existence of gender-related stereotypes and how the university support for entrepreneurship may assist on this issue, which could shed light to the unconfirmed hypothesis and comprehend its background. Qualitative research could be developed through case studies and directed interviews, which could contribute to deeper acknowledgement on the topics hereby approached.

So, *Does gender matter*? As shown in the Discussion, yes, gender can be pointed out as an important factor concerning self-efficacy's role. It was possible to conclude that gender matters when considering the impact of self-efficacy on females' intentions, since the female sample showed more intentions when they possessed higher self-efficacy perceptions. However, when it comes to students' perception of the university environment support for entrepreneurship contrasting males and females, this relationship did not show significant difference.

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APPENDIX A

Table with content summary of researches on Female Entrepreneurship in Brazil. It comprises information from bibliometric search done in Scopus, Web of Science and Scielo using the terms Female Entrepreneurship in Brazil, during 1960-2020 period.

Topics of research	Findings
Financing & loans	• In a comparison between Brazil and the USA, it was concluded that no many differences exist regarding the countries, though, differences were shown once men – in both countries – risk more than women (Barber III, 2015). • On average, women apply for lower loans than men (Agier & Szafarz, 2013). Despite their good reputation of paying loans bak, in developing countries, it is common for women to experience certain bias regarding getting bank aid (Agier & Szafarz, 2013).
Gender studies	• It is considered that men and women foster different kind of relations, which would lead to the nurturing of different kinds of networks (Vale et al., 2011a). This network is considered by the literature as an important aspect that could lead to entrepreneurship. Vale et al. (2015) evaluated a sample of entrepreneurs, in which men and women evaluated several indexes, being the network evaluation one of them. Results showed networking development extent of women are smaller than men's. This factor occurs due to lack of diversification of network made by women, letting themselves get more dependent to relatives and friends, while men develop relationships with broader variety of people from different areas.
Bibliometric studies	• Gomes et al. (2014) point, through a critic perspective, as necessary the existence of new analysis regarding entrepreneurship made by females. New lenses, as suggested by the authors, especially due to need of redirecting research. Chronologically, the authors describe female entrepreneurship as subject of research in Brazil (and international literature), by showing its evolution. According to the authors, few studies focus on gender issues, but most of them tend to discuss management impacts of women and their characteristics, trying to understand their profiles.
Family and work dilemma	• According to Welsh et al. (2018), even though female entrepreneurs' rate in Brazil is high, Brazil is a patriarchal country and females work role is still taking its place in development when compared to other countries in Latin America. In this research, Welsh et al. evaluated 137 female entrepreneurs and studied the effect of families involvement. The study proved that female business that had family involvement since the beginning had better performance than firms that started without family support and now are family business. It showed that women have difficulties funding their business and that is better to get funding with family business partners than with her/their own savings.
Firm creation & informality	• Firm creation antecedents were evaluated by Machado et al. (2003). Their results show that a great influence on females' firm creation is having a father who had a business, being mentioned by over 45% of interview entrepreneurs. Most of them (87%) do not have another income alternative than their business and 42,2% said that 100% of their family budget depended on them. Prior antecedents to opening a business show that mom entrepreneurs present themselves in a lower rate (24,4%). By comparing to Canada, it was possible to trace both similarities and differences. The authors show that female

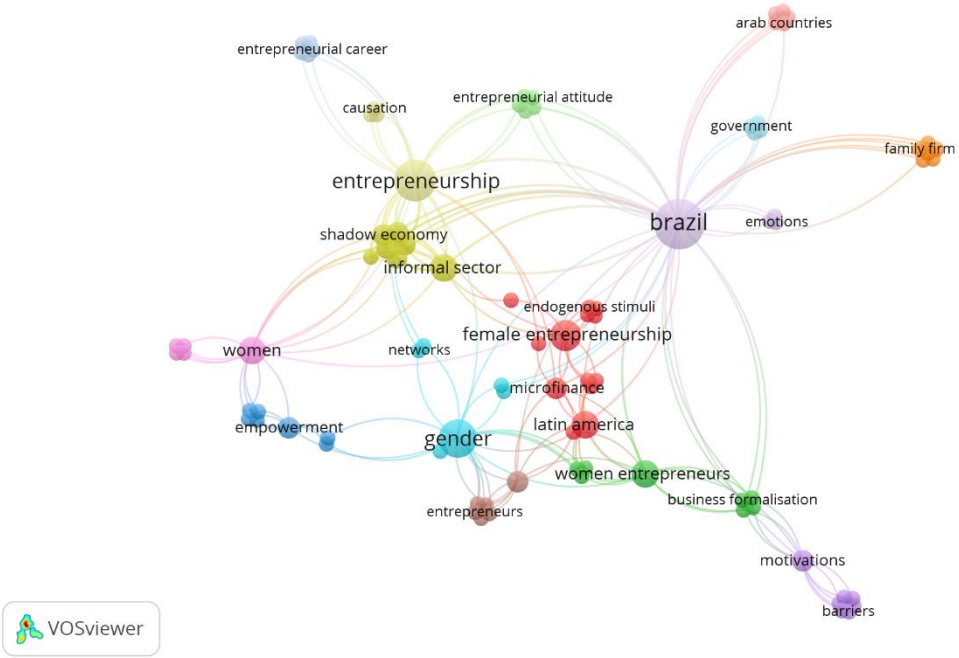
	entrepreneurs from both countries start a new business in order to fulfil personal goals (26,7%), also associating it to market opportunity (16,7%) and losing a job was mentioned by 6,6% as a reason to become entrepreneurs. With the sample from this research, the researchers were able to conclude that several reasons influence firm creation regarding females: a) prior experience in the field; b) nature of activity and role models; c) possible relation between experience time and business type; d) "forced" entrepreneurs, profiling women with over 20 years of market experience who were fired. • In Latin America, there is still prejudice and gender inequality regarding female entrepreneurship and when compared to Europe and North America, even though it has shown improvements, it shows less positive statistics (Terjesen & Amoros, 2010). Regarding growing expectancies, 13% of Terjesen & Amoros's study believe their business will grow during the next five years. • Creation of formal or informal businesses was evaluated in a paper which raised awareness on this aspect being an *exclusion* or *exit* result, once informality is related as a way of reducing costs in order to survive and also as a tool to absorb labor workers who could not get a formal job (Williams & Youssef, 2013). According to Williams & Youseff (2013), the *exit* stands for the movement of getting out of the formal sector, either willingly or not. Their sample was evaluated and it was possible to notice certain polarity on the kind of activities men and women performed, and also it was possible to understand that their path to entrepreneurship happened to both exit and exclusion reasons, though, females cite more exclusion reasons than exit (Williams & Youssef, 2013). • As many entrepreneurs seek informality due as a consequence of structural inequalities arising from ethnicity, gender, income or religion, a research was performed to comprehend women's reasons to perform informal business or become entrepreneurs (Marques et al., 2018). According to the authors, half their sample said they have opened their business due to opportunities to do so, by either family influence or tradition; the other half mentioned they have opened a business out of necessity, especially when their spouse did not have a job. Their source of ideas came, mostly, from family traditions or friends/husband influence (Marques et al., 2018).
Professional competences	• Analyzing 15 Brazilian female entrepreneurs, the authors concluded that emotional aspects are often involved in management business, these women showed a strong determination regarding having will power to overcome challenges and solve problems (Nassif et al., 2016).
Female Management	• Regarding growth expectancy, a research tested males and females expectations by using GEM's, therefore, the authors analyzed 49 countries in which Brazil was part of. So, according to Arroyo, Fuentes & Jiménez (2016), men are almost two times more likely to have high growth expectations. • Takahashi, Graeff & Teixeira (2006) profiled female school business owners in Curitiba, Brazil. Their research made a focus group in order to evaluate their profile and planning strategy. Theirs results were able to profile women who showed less likely to be propense to risk, moreover, characteristics showed that women focus more on the service quality they are providing and also the satisfaction of their staff, focusing on the human factor and human capital management (Takahashi et al., 2006). Their difficulties are regarding conflict

	management, communication improvement, organizational environment and delegation. • Through an analysis of women and how they exercise over other people and employees, Jonathan (2011) evaluated 149 female entrepreneurs from Rio de Janeiro. From this sample, 116 of them had business in various segments, while 16 acted on high tech and 17 were part of non-profit organizations. From this last group (17), half of them kept specific projects for women. The research was divided in two: the first part evaluated how they chose their business type and the second one focused on their characteristics and how they conducted their businesses. With age average on 45 years and with higher education, this sample characterized itself as having up to 10 employees. Reasons to start their business were pointed as ways to contribute with their family budget or searching for financial independence, as a way to provide for their families after a divorce or being fired. Gender prejudice is related as a surprise by the entrepreneurs, who told they sometimes needed to impose themselves. Time management is listed as a difficulty and it is mentioned as solvable when they make partnerships with family members, so that they can divided activities and responsibilities at home. Regarding power, it showed that females are often more valued by female entrepreneurs. Besides, it is also showed that women exercise power through relationship building with their employees, being characterized as exercising power *with* others than *on* others**.** • Analyzing human and social capital and management skills, Bertolami et al. (2018) confirm that females face more challenges regarding new business, which demands more effort towards the maintenance of nascent business.
University students studies	• Making use of exploratory research, Peñaloza et al.,(2008) studied female entrepreneurs and their process to choose Business administration majors to get into this area. The research evaluated 370 students in Fortaleza, Brazil and they concluded that regarding intentions towards opening their own business, women showed less enthusiasm (14,4%) whereas men showed a little higher results (23,2%). It was also evaluated the motivations towards entrepreneurship and their choice of major, gender, for that matter, did not influence their major choice nor their motivations, however, having fathers who owned a business influenced their intentions (both genders). • By focusing on female students' perception of their entrepreneurial attributes, Villasana et al. (2016) studied over 1500 students from 11 universities in Latin America (Mexico, Argentina, Brazil, Colombia, Costa Rica, El Salvador, Guatemala and Uruguay) and also one from Spain. Their research shows that self-confidence is an attribute showed equally in both males and females. However, statistically different results were found in creativity, problem management and risk management. They suggest that entrepreneurship university programs can change that by offering an academic supportive environment that encourages female students by strengthening their abilities and entrepreneurial attributes.

Source: own authorship

APPENDIX B

Map of Relationship between topics of research on Female Entrepreneurship in Brazil This unfiltered analysis done by Vosviewer software shows relationship among research topics considering the theme Female Entrepreneurship in Brazil with information gathered from the bibliometric search performed in Scopus, Web of Science and Scielo during 1960-2020 period).



Source: Vosviewer