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BEHAVIOR AND ENTREPRENEURIAL POTENTIAL IN THE LIGTH OF THE CARLAND ENTREPRENEURSHIP INDEX – CEI IN THE UNIVERSITY STUDENT PERSPECTIVE

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Abstract

Objective: To analyze the contribution of the teaching of entrepreneurship, in the development of the entrepreneurial potential of Business Administration majors on a higher level education institution.

Method: The study was divided in two stages: in the first stage, a descriptive and documentary research was carried out, with a qualitative approach. Subsequently, a quantitative study was carried out by means of a survey. The data collection instrument used was proposed by Carland, Carland and Hoy (1992), called Carland Entrepreneurship Index (CEI).

Originality/Relevance: The research deepens a discussion about the entrepreneurial potential and teaching of entrepreneurship in higher education, evidencing decisive empirical factors for the formation of new managers-entrepreneurs.

Results: The methodological mechanisms demonstrated the existence of congruent knowledge between the tested model and the contents disseminated in the classroom. Thus, the contribution to the entrepreneurial training of students in the decreasing requirements of identification of entrepreneurial potential, micro-entrepreneurs and macro-entrepreneurs.

Theoretical / methodological contributions: The study contributes to the literature by pointing out, through the empirical propositions, that the content in the student training process exerts a guiding function in the construction of behaviors aimed at entrepreneurial education.

Social/management contributions: The findings in the field were salutary to direct the pedagogical management and the teaching staff regarding the interdisciplinarity of contents of entrepreneurial training in the nuclei of basic training, complementary, Contents of Quantitative Studies and their Technologies and Complementary Training Contents, as established by the National Curricular Guidelines of the Graduate Program in Administration.

Keywords: Entrepreneurship. Teaching of entrepreneurship. Entrepreneurial potential.

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COMPORTAMENTO E POTENCIAL EMPREENDEDOR À LUZ DA ESCALA DE CARLAND ENTREPRENEURSHIP INDEX (CEI), NA ÓTICA DE ESTUDANTE UNIVERSITÁRIOS

Resumo

Objetivo: Analisar a contribuição do ensino de empreendedorismo, no desenvolvimento do potencial empreendedor dos estudantes do curso de administração, de uma instituição de ensino superior.

Método: O estudo foi dividido em duas etapas: na primeira etapa foi realizada uma pesquisa descritiva e documental, com abordagem qualitativa. Na sequência, foi realizado um estudo quantitativo por meio de uma *survey*. O instrumento de coleta de dados utilizado foi proposto por Carland, Carland e Hoy (1992), denominado de *Carland Entrepreneurship Index* (CEI).

Originalidade/Relevância: A pesquisa aprofunda uma discussão acerca do potencial empreendedor e ensino de empreendedorismo no âmbito da educação superior, evidenciando fatores empíricos decisivos para a formação de novos gestores-empREENDEDORES.

Resultados: os mecanismos metodológicos mostraram a existência de conhecimentos congruentes entre o modelo testado e os conteúdos disseminados em sala de aula. Mostrando assim, a contribuição para a formação empreendedora dos estudantes nos quesitos decrescentes de identificação de potencial empreendedor, microempreendedores e macro empreendedor.

Contribuições teórico-metodológicas: o estudo contribui com a literatura ao sinalizar por meio das proposições empíricas que a integralização de conteúdos no processo da formação do estudante exerce uma função balizadora na construção de comportamentos voltados para a educação empreendedora.

Contribuições sociais/para a gestão: Os achados em campo foram salutares para direcionar a gestão pedagógica e a equipe docente no tocante a interdisciplinaridade de conteúdos de formação empreendedora nos núcleos de formação básica, complementar, Conteúdos de Estudos Quantitativos e suas Tecnologias e Conteúdos de Formação Complementar, conforme institui as Diretrizes Curriculares Nacionais do Curso de Graduação em Administração.

Palavras-chave: Empreendedorismo. Ensino de empreendedorismo. Potencial empreendedor.



COMPORTAMIENTO Y POTENCIAL EMPREENDEDOR A LA LUZ DE LA ESCALA DE CARLAND ENTREPRENEURSHIP INDEX (CEI), EM LA ÓPTICA DE ESTUDIANTES UNIVERSITARIOS

Resumén

Objetivo: Analizar la contribución de la enseñanza del espíritu empresarial, en el desarrollo del potencial emprendedor de los estudiantes del curso de administración, de una institución de enseñanza superior.

Método: El estudio se dividió en dos etapas: en la primera etapa se realizó una investigación descriptiva y documental, con abordaje cualitativo. En consecuencia, se realizó un estudio cuantitativo a través de una encuesta. El instrumento de recolección de datos utilizado fue propuesto por Carland, Carland y Hoy (1992), denominado Carland Entrepreneurship Index (CEI).

Originalidad/Relevancia: La investigación profundiza una discusión acerca del potencial emprendedor y enseñanza de emprendedorismo en el ámbito de la educación superior, evidenciando factores empíricos decisivos para la formación de nuevos gestores-emprendedores.

Resultados: Los mecanismos metodológicos mostraron la existencia de conocimientos congruentes entre el modelo probado y los contenidos diseminados en el aula. De esta forma, la contribución a la formación emprendedora de los estudiantes en las cuestiones decrecientes de identificación de potencial emprendedor, micro emprendedores y macro emprendedores.

Contribuciones sociales/para la gestión: Los hallazgos en campo fueron saludables para dirigir la gestión pedagógica y el equipo docente en cuanto a la interdisciplinariedad de contenidos de formación emprendedora en los núcleos de formación básica, complementaria, Contenidos de Estudios Cuantitativos y sus Tecnología y Contenidos de Formación Complementar, según establece las Directrices Curriculares Nacionales del Curso de Graduación en Administración.

Palabras clave: Emprendedor. Enseñanza de emprendimiento. Potencial emprendedor.



1 INTRODUCTION

Studies on the contribution of entrepreneurship to economic growth and development show the influence of entrepreneurial culture on this process within society as being positive. However, in order to generate this contribution, considered entrepreneurs individuals face challenges that demand to be exploited as an opportunity, transforming the act of entrepreneurship in generating concrete results with discipline and persistence (Schumpeter, 1934; McClelland, 1972; Carree & Thurik, 2003; Hisrich; Peters & Shepherd, 2014).

In order to enable individuals to become entrepreneurs, both the perception of opportunities and the generation of ideas and facing challenges, the teaching of entrepreneurship is a strong ally. In this regard, students are increasingly enrolling in university majors seeking the necessary training in various areas of knowledge so that they may become entrepreneurs (Hecke, 2011; Lima, Hashimoto, Melhado, & Rocha, 2014; Rocha & Freitas, 2014).

However, even relying on preparation, entrepreneurship is a complex process based on multiple variables, and it is possible to classify as entrepreneur an individual with innovative stance, who using a certain strategy, develops a business aiming growth and resultant profit. Hence, considering that the level of entrepreneurship is a subjective variable, it is difficult to establish a tool that quantifies the level of entrepreneurship of individuals considered entrepreneurs (Inácio Júnior & Gimenez, 2004).

Among the current methods, it is possible to highlight the *Carland Entrepreneurship Index* - CEI from Carland, as in Carland & Hoy (1992). Following this method, the entrepreneurship is a function of four fundamental elements: strategic posture, propensity for innovation, personality traits (which involves the necessity for achievement and creativity) and risk propensity.

In the light of the CEI scale, individuals are classified into three categories: micro-entrepreneur, entrepreneur and macro-entrepreneur, in accordance with the presence of the four elements previously described (Inácio Júnior & Gimenez, 2004).

Faced with the need of formation of current and future entrepreneurs, taking into account the development of entrepreneurship in business administration majors is presented as a way of contributing to the economy and citizenship development, the institutions of higher education level take over a fundamental role as they provide



meeting places of supply and demand of contents as to stimulate the development of entrepreneurial competences (Henrique & Cunha, 2008; Andreassi & Fernandes, 2010; Silva, 2010; Ribeiro & Bernardes, 2014).

Johan, Krüger & Minello (2018) affirm that the entrepreneur is merely someone who has the gift of doing business as entrepreneur, but it is someone gifted with an array of characteristics that classify them as entrepreneur, and such characteristics are susceptible of being learned. Recognizing this affirmation, the formation of entrepreneurs is a preponderant factor for the economic development of a region.

Considering that the entrepreneurial formation has a multidisciplinary characteristic, so that the various objectives are achieved, it is necessary to establish a plan which adapts the teaching methodology to the aimed learning context. From this point of view, different options of methods, techniques and resources are found in the literature as a means of promoting the process of teaching and learning in the entrepreneurial formation (Boyles, 2012; Honig, 2004; Kuratko, 2005; Degen, 2009; Ilander, 2010; Knotts, 2011; Schmidt; Soper & Facca, 2012).

Thereby, the study aims understanding: What is the contribution entrepreneurship teaching to the development of the entrepreneurial potential of business administration majors of a higher level education institution, from the point of view of the *Carland Entrepreneurship Index*? Intending to answer this question, the general objective outlined is to analyze the contribution of entrepreneurship education in the development of the entrepreneurial potential of students in business administration at a higher level education institution. As to achieve the proposed objective, the study was divided in two stages: in the first stage, a descriptive and documentary research was conducted with a qualitative approach; the second, on a quantitative approach, made use of the survey strategy with questionnaires applied together with a sample of 171 students from the major of Business Administration of a HLEI (Higher Level Education Institution) in an inland city of Ceará. For quantitative data analysis, we used the descriptive analysis and the statistical technique of analysis of variance (ANOVA), aiming to answer the guiding question of this study.

The study contributes with the literature, as it indicates, by the means of empirical propositions that the completion of contents in the major formation process exercises a guiding function in the construction of behaviors focused on entrepreneurial education. In addition, it enables changes in the curriculum and provides directions to the university courses regarding practice that contribute to the



formation of new entrepreneurs, in the way of content offer and practices that stimulate the development of entrepreneurial competences (Hecke, 2011; Ribeiro & Bernardes, 2014). Beyond the aspect of formation, it is necessary to comprehend the aspects that the individual already has in themselves regarding the entrepreneurial potential. For Carland & Carland (1996), every individual has entrepreneurial potential. And by developing it, one is able to identify opportunities and make use of their creativity to turn these opportunities into business, taking risks for obtaining success.

The sequence of the article is structured as follows: theoretical framework on entrepreneurship teaching and entrepreneurial potential; description of methodological procedures; discussion of results and final considerations, which also presents the limitations of this study and suggestions for future research. In order to discuss the fundamental theoretical framework and its relevant contributions, the theoretical framework is presented below, starting with teaching entrepreneurship, followed by entrepreneurial potential and the consequences of the study by Carland, Carland & Hoy (1992), with its conceptual model of entrepreneur classification into categories: the CEI - Carland Entrepreneurship Index method.

2 ENTREPRENEURSHIP TEACHING

Teaching activity by its nonlinear logic nature, in teaching and learning terms, requires pedagogical practices which provide sense when teaching and learning. Aiming to follow the changes in society and student profile, teachers need to be increasingly qualified to face the demands arising from the exercise of the profession (Franco, 2015; Nunes & Oliveira, 2017).

Regarding higher education, its essence consists in the transmission and dissemination of knowledge, which is due to its importance to society. Bernheim & Chauí (2008) emphasize that growth must be the main paradigm to be followed by higher education. In this belief, the same authors state that it is vital to seek an improvement based on our own productive strengths, capacities and competitiveness at the benefit of human dignity.

Aligned to this conception, the advancement of entrepreneurship in business administration students is displayed as a way of contributing to the economy and citizenship development. In expansion, the difficulty of earning a formal job, the necessity to develop skills and abilities, the increase in the hours worked in large



corporations and the search for a better quality of life, contributed to individuals to see entrepreneurship as an alternative in career matters (Henrique; & Cunha, 2008; Andreassi & Fernandes, 2010).

The teaching of entrepreneurship presupposes the experience, adaptation and experimentation, so that the student is inserted in real contexts with the intent of understanding the dynamics of an enterprise and is prepared to experience the various situations he will encounter in his entrepreneurial reality. In other words, to conceive the teaching of entrepreneurship as a process that develops a set of practices and that, through the mastery of these practices, the students become capable of thinking in an entrepreneurial manner and consequently perform actions this way (Neck & Greene, 2011 Neck et al., 2015).

In this sense, some methods that favor practice as teaching methodologies such as case studies and business games are indicated, besides lectures, readings, visits to companies, simulations and achievement of projects, business plans, experiences with entrepreneurs, among others (Filion, 2000; Honig, 2004; Souza et al., 2004; Kuratko, 2005; Henrique & Cunha, 2008; Degen, 2009; Greatti et al., 2010; Ilander, 2010; Lopes, 2010; Knotts, 2011; Boyles, 2012; Schmidt; Soper & Facca, 2012; Rocha & Freitas, 2014).

Aiming to organize and provide the most appropriate pedagogical methodologies and applications for entrepreneurship education, Rocha & Freitas (2014) present the list of pedagogical proposals and their respective applications, used in entrepreneurship teaching. Chart 1 presents the main educational activities in entrepreneurship formation (AEFE) as proposed for entrepreneurship teaching:

Chart 1 – Educational activities of entrepreneurship teaching

| Methods, Techniques e Resources. | Application |
|---|--|
| Lecture classes | Transfer knowledge on Entrepreneurship, the entrepreneur's personal characteristics, innovation processes, sources of funds, financing and legal aspects of small business companies. |
| Visits e contacts with business companies | Stimulate <i>network</i> e encourage student to not be limited to IES in order to understand the functioning of market in real life. Develop Market view. |
| Business plan | Develop the abilities of planning, strategy, publicidade, accounting, human resources, marketing. Develop the ability of evaluation of the new business, analyzing the impact of innovation of the new product or service. Build the ability to evaluate and scale risks of intended business. |
| Cases studies | Build the ability of critical thinking, scenario evaluation and business. Develop the ability of interpretation e |



| | |
|--|---|
| | definition of contexts associated to Entrepreneurship. |
| Theroretical work in group | Build the ability to learn collectively. Develop the ability of researching, dialoguing, integrating and building knowledge, find solutions and issue judgement values at the achievement of the written document. |
| Practical work in group | Build the ability to work in a team. Develop the ability of planning, sharing and executing group tasks, providing and accepting constructive criticism. Expand the integration of know-how. |
| Discussion groups | Develop the ability of testing new ideas. Develop the capacity of evaluating changes and prospecting them as source of opportunities. |
| <i>Brainstorming</i> | Build the ability of ideas conception, prospection of opportunities, recognizing them as entrepreneurial opportunities. Stimulate the intuitive reasoning so to create new combination of services and products, turning them into innovations. |
| Seminars and lectures with entrepreneurs | Transfer knowledge of the experiences lived by the entrepreneurs from product perception and creation, business opening, accomplishments and failures occurred during the process of the entrepreneurial career. |
| Business company creation | Transpose the business plan information and structure the required contexts for formalization. Comprehend various stages of the company evolution. Develop the ability of the organization and operational planning. |
| Application of dissertative exams | Test the theoretical knowledge of the students and their ability on written communication. |
| Individualized treatment | Develop the ability of communication, interpretation, initiative and resolubility. Bring the student closer to real everyday-life small businesses. |
| Trabalhos teóricos individuais | Construção da habilidade de geração de conhecimento individualizado, estimulando a autoaprendizagem. Induzir o processo de autoaprendizagem. |
| Individual practical works | Build the ability of application of theoretical knowledge to stimulate self-learning. Stimulate the working capacity and self performance. |
| Product creation | Develop the abiltiy of creativity, persistence, innovation and sense of evaluation. |
| Filmes e vídeos | Develop the ability of critical and analytical thinking, associating the context assisted with the theoretical knowledge. Stimulate the discussion in group and the debate of ideas. |
| Company games and simulations | Develop the ability of creating business strategies, solving problems, work and make decisions under pressure. Learn by one's own mistakes. Develop tolerance to risk, analytical thinking, intra and intergroup communication. |
| Reading suggestion | Provide the student with theory and concepts about entrepreneurship. Increase the awareness of the entrepreneurial act. |
| Incubators | Provide the students with motivation space and creation of the new company, developing multiple competences, such as abilities of leadership, as well as organizational abilities, decision making and comprehending the stages cycle of life of companies. Stimulate the strengthening of network with |



| | |
|-------------------------------|--|
| | financiers, suppliers and clients. |
| Competition of business plans | Develop abilities of communication, persuasion and strategy. Develop capacity of observation, perception and application of improvements in the quality standards of presented plans. Stimulate the creation of companies by the means of the winning plans. |

Source: Rocha & Freitas (2014)

From Chart 1, it is noticeable the purpose of using the described activities is to enable students, considered as potential entrepreneurs, to learn through experimentation and practical-theoretical relationships. Thus, regarding the teaching of entrepreneurship in higher level education institutions, Machado, Lenzi & Manthey (2018), emphasize that these institutions should act as spaces for the dissemination of knowledge with scientific and technological support centered on the entrepreneur's vocational formation. Hence, these institutions begin to act in ways that encourage students to wake up to do business and to consequent exploration of opportunities.

In this sense, Hashimoto & Fonseca Jr (2018), affirm that entrepreneurship education presents a diversity of challenges to be faced by educational institutions and, consequently, by the market for the coming years. Among the challenges: the necessity to bring innovations to teaching and learning stages. It is then necessary to use an approach which the student can understand contexts and can structure a business evolutionary process and its implications. Therefore, Hashimoto, Krakauer & Cardoso (2018), advocate the need to use practical activities in the formation of entrepreneurs where different methodological forms of application of entrepreneurship education aiming at the formation of the entrepreneurial individual are pointed out. In this way, the authors emphasize the need to use hybrid schools, which bring in their methods both traditional and innovative teaching and learning methods. Promoting a model that involves practice and theory, so that practical experience develops the entrepreneur and enables them to do business.

Considering the need for a multidisciplinary approach imposed by entrepreneurship, involving various learning contents, it is necessary to organize the methodologies and their respective pedagogical applications. Because of this and the pedagogical proposals in the scientific literature, it is necessary to relate and describe the applications of the main methods, techniques and resources used in teaching entrepreneurship. This action aims to awaken and foster the development of characteristics of intention, potential and entrepreneurial abilities in students, so they may, in the near future, become entrepreneurial agents.



3 ENTREPRENEURIAL POTENTIAL

In order to understand the profile of the entrepreneurial potential of the entrepreneur, entrepreneurship is presented as a theme of wide diffusion in the academic environment and is the central focus of books, articles and various publications. This need has already been the reason for previous questions by the researchers. In this sense, several scales have already been built to identify and measure the profile of the entrepreneurial potential, through the application of tests and, for some time, studies in the field of entrepreneurship focused on the question: who is the entrepreneur? (Gartner, 1989; Carland, Carland & Hoy, 1998; Veit & Gonçalves Filho, 2007; Santos, 2008; Santos; Caetano & Curral, 2010).

In this path, the researchers Veit & Gonçalves Filho (2007) developed a scale whose objective was to identify and measure the profile of the entrepreneurial potential - PPE. Such scale was considered valid by its proof through the application of applied tests. The study was conducted through a survey of 965 small Brazilian entrepreneurs and the scale is based on the constructs: risk; strategic competence; analytical thinking; relationship; formal planning; challenge; innovation; and dedication. To carry out the elaboration of the instrument, the researchers were based on McClelland's (1972) studies; Schumpeter (1982); Timmons (1989); Carland & Carland, (1996) Filion, (2000); Mintzberg & Quinn (2001); Drucker, (1986) in addition to research conducted with entrepreneurs and entrepreneurs through SEBRAE and GEM. The results obtained through the study by Veit & Gonçalves (2007) were compared with previous studies, demonstrating the alignment of the new scale with the previous results.

Corroborating this topic of research in the area of entrepreneurship, it is possible to highlight the work of Santos (2008), which aimed to elaborate a scale to measure the entrepreneurial potential of individuals, which is built by means of psychometric and statistical techniques, the application of which could be made along with students, entrepreneurs, and candidates to join corporate incubator programs. Aiming at reaching the proposed objective, scenarios were defined as construct factors and items that later allowed the elaboration and validation of the questionnaire that would originate the measurement scale of the entrepreneurial potential.



The constructs that compose the scale of the proposed instrument are distributed in three blocks, namely: accomplishment; planning (problem solving); and power (influence / relationship with people). Following this, the questionnaire was elaborated and it went through several validation and refinement phases with: students from four states of the country; entrepreneurship teachers; groups of entrepreneurs (divided between the successful and the failed ones) and after the various stages of improvement of the instrument, the final version consisted of 59 questions, using a semantic differential scale (ranging from unnecessary to essential) and its final validation was performed with 100 entrepreneurs from Alagoas. By using the scale, it is possible to compare the scores obtained with the results of entrepreneurs considered as entrepreneurs, through a comparative scale and a radial graph to plot the points obtained, in order to compare the results of non-entrepreneurial individuals with those of successful entrepreneurs. Such measure allows the individual to know the aspects of his entrepreneurial potential that needs to be better developed and thus seek such improvement.

Also aiming to know and measure the entrepreneurial potential of the subject who does business, Santos, Caetano & Curral (2010) conducted in Portugal, a study focused on the attitudes of university students towards entrepreneurship. The theoretical model of potential entrepreneur proposed by the researchers was built through a literature review and based on the main distinctive aspects of entrepreneurial behavior, which are: entrepreneurial motivations, psychological competences, social competences and management competences.

After the conceptual construction process, the entrepreneurial potential construct was elaborated through the Entrepreneurial Potential Assessment Inventory (IAPE ©) where an instrument composed of a set of items measured on a five-point agreement scale was validated with a sample of 521 undergraduates in the fields of social science, health, management and technology.

Anchored in the IAPE, the Entrepreneurial Potential Index - IPE was built by weighing the four entrepreneurial potential greatneses: entrepreneurial motivations, management skills, psychological skills and social skills. The IPE is suitable for working with universities and other entrepreneurship development programs, as it enables the positioning of the individual on a scale of measurement of their potential according to a consistent theoretical framework. Thus, besides measuring the



entrepreneurial potential of the individual, it is also possible to identify the skills that need to be developed (Santos, Caetano & Curral, 2010).

Seeking a better understanding on the subject, Ferreira, Alcântara & Freitas (2013) sought to validate a scale for measuring entrepreneurial potential among students of a public higher level education institution. The instrument had a questionnaire composed of 30 items in Likert scale and the analyzed factors were: Planning, Goals and Control; Intention to do business; Persistence; Opportunity; Persuasion; Efficiency and Information. As for the elaboration of the instrument, the researchers based on the work of Santos (2008). In this sense, similarities were found in the works, with emphasis on the items "Information" and "Efficiency".

Regarding the entrepreneurial potential of already established entrepreneurs, Souza, Trindade, Freire & Lyra (2016), analyzed the entrepreneurial potential of the business owners of the tourism sector of Florianópolis (SC), through a descriptive study with 35 businesswomen. The study was performed by applying the IEC scale, an instrument developed by Carland, Carland & Hoy (1992). The results show that 68% of the interviewees are classified as entrepreneurs, as they have an average of 19.9 on a scale that has a total of 33 possible points. Also demonstrating significant statistical differences in the factors "personality traits", "strategic posture" and "risk propensity".

It should be noted that the necessity for understanding the entrepreneur's profile has been a reason for previous questions from the researchers. For some time, studies in the field of entrepreneurship focused on the question: who is the entrepreneur? (Carland, Carland & Hoy, 1998; Gartner, 1989). In this sense, we seek to consider the essential aspects to the development of entrepreneurial action, citing innovation. Without the practice of innovation, there are no entrepreneurs, which does not enable opportunities, as it does not allow the creation of companies that can take risks calculated for the environment in which they operate. Fonseca Júnior & Hashimoto (2014), when analyzing the concept of entrepreneurship in its broad sense, describe entrepreneurs as agents that influence the generation of wealth in a nation in a creative way. The authors state that the basis of entrepreneurship lies in the perception and exploitation of new business opportunities, using resources in an innovative way.

According to Culti-Gimenez et al., (2006) in entrepreneurship studies, some authors consider individuals ready to be stimulated to the generation of new values



because they would have been born to become entrepreneurs. As a result, Carland, Carland & Hoy (1992) proposed a conceptual model to classify the entrepreneur into categories, the CEI - Carland Entrepreneurship Index method. Carland, Carland & Hoy (1992) state that all individuals can be considered entrepreneurs, varying only in intensity.

The taxonomy of entrepreneurs' classification according to the CEI model is based on expected business objectives. According to this perspective, all individuals who have certain characteristics are entrepreneurs and what differs them is only the intensity, and can be classified into three groups: micro-entrepreneur, entrepreneur and macro-entrepreneur. In order to classify individuals, Carland, Carland & Hoy (1992), creators of the model, developed a research instrument called Carland Entrepreneurship Index - CEI. The CEI scale is based on a means of measuring an individual's entrepreneurial potential through the observation of the presence of certain characteristics in the subject in question.

According to Carland & Carland (1996), when outlined, the instrument initially included 40 (forty) forced-choice questions. However, the questions and their constructs evolved from the entrepreneurship elements adopted in the literature: personality traits, propensity for innovation, risk propensity and strategic posture, resulting in the current scale with 33 (thirty-three) pairs of questions. For the authors, the forced-choice format would result in an instrument that did not require respondent training to define its response and would easily produce a numerical score. The intent of the ERC's creators was to devise an instrument that would result in a concrete measure of the strength of the business drive, that is, the drive to create a business in an individual, and to examine whether differences in the strength of that move affect the performance of the business enterprise. According to the CEI scale and according to the test result on the scale, the individual is classified according to his or her entrepreneurial potential according to the number of points obtained in the test on a potential scale divided between: micro-entrepreneurs, entrepreneurs and macro-entrepreneurs.

The classification of entrepreneurs in the CEI model, is based on expected business objectives. The scale is based on a means of measuring an individual's entrepreneurial potential through the presence of certain characteristics. According to this perspective, all individuals who have such characteristics are entrepreneurs and



what differs them is only the intensity, and can be classified into three groups: micro-entrepreneur, entrepreneur and macro-entrepreneur.

Micro-entrepreneurs (0 to 15 points on the scale) perceive the organization as another aspect of their life and whose main purpose is to provide self-employment and sufficient income to have freedom and enjoy with family and friends. The entrepreneurs (16 to 25 points) have dreams of recognition by society, wealth and freedom. Finally, entrepreneurial macros (26-33 points) want to make their venture the industry leader by valuing social recognition and wealth over leisure and family aspects (Culti-Gimenez et al., 2006).

The instrument considers four constructs: Personality Traits; Propensity to Innovation; Risk Propensity and Strategic Posture, resulting in a scale with 33 (thirty three) pairs of questions. The Personality Traits (TP) dimension refers to the need for achievement (NR) and creativity. Culti-Gimenez et al. (2006) define this dimension as a social motivation, according to the authors the individual with high necessity for accomplishment is someone who seeks to perform complex activities, aims to achieve difficult goals, according to high levels of performance and strives targeting excellence.

According to Freitas et al. (2009), the Propensity to Innovation (IP) dimension, seeks to understand whether the entrepreneur adds innovation in their enterprises. The Risk Propensity (PR) dimension, on the other hand, relates to the challenges faced in the pursuit of objectives and is also considered pertinent to the entrepreneur as well as IP. For Culti-Gimenez et al. (2006, p. 3) such dimension can be understood as “the tendency and desire of the individual to accept or avoid situations of uncertainty relative to a situation in which the results may be negative or positive”. By Strategic Posture (PE), it measures an individual's ability to perceive business, as well as the exploitation of opportunities (Carland & Carland, 1996).

It is emphasized here, that the proposed instrument does not aim to identify who is or who is not an entrepreneur, but seeks to position the individual within a “continuum” of more or less entrepreneurial people (Inácio Júnior & Gimenez, 2004). It might then be considered that all individuals have entrepreneurial characteristics and what differs them would be the level of intensity and use of these characteristics, since they are personality and posture, and fall into subjective attributes. Thus, quantifying a subjective attribute is not an easy activity, so there is no single or better instrument. In this study, the IEC is adopted as a reference for such quantification.



4 METHODOLOGY

The research is descriptive, conducted through a survey of quantitative and qualitative approach to the analysis of teaching plans. As for the purposes, the research is descriptive, as it seeks to analyze the entrepreneurial potential of students of Business Administration, from a private HLEI, according to the Carland Entrepreneurship Index (CEI) model. This is a quantitative study with qualitative support through documentary research with the teaching plans of the subjects taught in the course under analysis. Martins & Theópilo (2016, p. 107) define quantitative research as “those in which data and evidence collected can be quantified, measured and subjected to statistical techniques and / or tests”. According to Marconi & Lakatos (2017), by anchoring itself in rules of logic, quantitative research allows clarity and control of variables, excluding subjectivity and inference by the researcher, since their results are verified by statistical analysis.

Among the two private institutions that offer business administration courses, it was decided to research the one with the largest number of students. The aim was identifying a population of 230 students from a private higher level education institution in Sobral in the northern region of Ceará. Although inserted in one of the largest municipalities in the region and considered one of the largest educational institutions, its students, specifically the surveyed, has a concomitant socioeconomic profile in income of up to two minimum wages (IBGE, 2010) from the service sector followed by industry. The questionnaire was applied to 171 students who were present in the classroom at the time of the research. The return was 87.72%, representing 150 valid questionnaires for the survey. Being excluded 21 questionnaires due to incomplete filling.

Seeking to identify which course subjects were focused on entrepreneurship or that addressed this theme, as well as to categorize their teaching strategies, a documentary research was conducted by verifying a universe of forty six plans with a sample of seventeen analyzed plans. The data were analyzed in order to identify the academic subjects that address the entrepreneurship theme, which strategies are used in each one and hence identify which strategies are in common.

As to identify students' profile and classify their entrepreneurial potential according to the Carland Entrepreneurship Index (CEI) scale, the instrument developed by Carland, Carland & Hoy (1992) was applied and translated and



validated in Brazil by Inácio Júnior & Gimenez , in 2004. The CEI is composed of 33 (thirty-three) pairs of questions that measure entrepreneurial potential according to the four dimensions defined by the authors and previously mentioned. The instrument applied in this research was composed of two blocks, a first block seeking information that aims to trace the profile of students containing questions related to: age, gender, professional activity and intention to do business; and a second block addressing the instrument issues of Carland, Carland & Hoy (1992).

Quantitative data were obtained through the application of the IEC instrument and tabulated according to the recommendation by Inácio Júnior & Gimenez (2004). According to the choice of respondents regarding the choice of questions and the final sum of results, individuals are classified on the CEI scale: micro-entrepreneurs (0 to 15 points), entrepreneurs (16 to 25 points) and macro entrepreneurs (26 to 33 points).

The analysis of quantitative data was performed through the treatment of objective questions using statistical tests performed using the software SPSS - Statistical Package for the Social Sciences - version 20. The collected data provided the elaboration of tables and achievement of the descriptive analysis, objectifying the analysis and understanding each research data. Since when describing a sample, the researcher has the opportunity to have intimate contact with the data obtained and it is possible to anticipate the problems and identify previous solutions (Malhotra, 2006).

5 RESULTS DISCUSSION

At this stage, the research results obtained through the analysis of the teaching plans of the course and application of the questionnaires will be presented. The teaching strategies adopted by the course subjects will be presented. Concerning the second stage of the research - questionnaire application - the statistical analysis was performed through descriptive analysis of the sample, analysis of average, frequency, standard deviation and coefficient of variation.

5.1 Teaching strategies

The teaching plans of the academic subjects of all semesters of the course were analyzed, aiming to identify which contained some content that addressed entrepreneurship themes and in this way categorize which teaching



methods/strategies are used to work such contents in the classroom. In the IES object of study of this research, 17 academic subjects were identified that address contents that which to the entrepreneurial formation.

Among these subjects, we highlight “Business Games”, which focuses its teaching strategy on the simulation of a company through a software that students assume the role of business owners, competing in teams and aiming to achieve the success of this business company. In addition, the course includes learning materials and tools aimed at developing students' entrepreneurial potential, such as contact with entrepreneurs, presentation of business pitches, and participation in events, among others.

All academic subjects have different approaches and strategies adopted by teachers. Among the methodological strategies used by the studied HLEI, some of them are present in most subjects, especially the lecture, used in all listed subjects. This result converges with the results Guimarães (2002). According to the author, lectures and readings are necessary to provide the student with information about the processes of business company creation, as well as the development of values and attitudes necessary for business practice.

Strategies such as: seminar presentation; case study; reading and discussion of articles/texts; exercises and games; are also adopted in most subjects. Greatti et al. (2010) advocate exercise strategies and simulation games, when they state that the teaching of entrepreneurship when carried out in the classroom should prioritize the “problematizing methodologies”, which lead the student to reflect on problem solving through experimentation and practical-theoretical relationship. Such strategies and approaches are recommended because of the practical need inherent in teaching entrepreneurship. Where the experience, adaptation, experimentation and insertion in real contexts, provides the student with the propitious environment for the development of their entrepreneurial formation, since they learn by doing (Filion, 2000; Souza et al., 2004; Lavieri, 2010; Lopes, 2010, Lima et al., 2015a; Rocha & Freitas, 2014; Lima et al., 2015b; Machado, Lenzi & Manthey, 2018; Hashimoto & Fonseca Jr., 2018; Hashimoto, Krakauer & Cardoso, 2018).

5.2 Classifications of the entrepreneurial potential

In order to identify the profile of the students analyzed, we considered aspects such as gender, age, semester of the course, whether or not they are in paid work



and if they intend to start their own business. In the sample analyzed, most are men (62.67%), aged between 20 and 24 years (47.33%), attending the middle of the course (semesters 1 to 4; 62.7%), where 68.67% declared to have some paid activity, only 10% own a company, but among those who do not have (135 individuals), 115 stated that they intended to do business (76.75%). When asked what they attributed their entrepreneurial intention, 44.5% attributed to university education, 33.6% to family life and 21.8% to living with friends. These results are partially in line with those found in the GEM survey (2018), which shows the majority of men (51.3%) in the sample participation, as well as the majority of young adults (18 to 24 years) in the group of initial entrepreneurs (22, 2%).

This study adopted the Carland Entrepreneurship Index (CEI) as a theoretical model for the classification of the entrepreneurial potential. This model considers four dimensions of characteristics to define the entrepreneurial potential: Strategic Posture (EP), Propensity to Innovation (IP), Personality Traits (TP) and Risk Propensity (PR).

According to Carland & Carland (1996), the Strategic Posture (SP), verifies how the individual uses their perception and intuition to solve problems. In this sense, the characteristics verified in this construct refer to how much the individual is able to perceive opportunities, make decisions, negotiate and make things happen with economy of movement. Sequentially, Table 1 presents the entrepreneurial characteristics related to the Strategic Posture (SP) construct investigated with the respondents of this research.

Table 1 - Map of the Respondents' Entrepreneurial Characteristics - Strategic Posture (SP)

| Construct | Questions CEI | Answers WITHOUT Characteristics | | Answers WITH Characteristics | |
|-------------------|---------------|---------------------------------|-------|------------------------------|-------|
| | | Frequency | % | Frequency | % |
| Strategic Posture | 1 | 56 | 37,30 | 94 | 62,70 |
| Strategic Posture | 4 | 13 | 8,70 | 137 | 91,30 |
| Strategic Posture | 5 | 44 | 29,30 | 106 | 70,70 |
| Strategic Posture | 8 | 13 | 8,70 | 137 | 91,30 |
| Strategic Posture | 9 | 89 | 59,30 | 61 | 40,70 |
| Strategic Posture | 11 | 55 | 36,70 | 95 | 63,30 |
| Strategic Posture | 12 | 37 | 24,70 | 113 | 75,30 |
| Strategic Posture | 20 | 48 | 32,00 | 102 | 68,00 |
| Strategic Posture | 21 | 118 | 78,70 | 32 | 21,30 |
| Strategic Posture | 23 | 42 | 28,00 | 108 | 72,00 |
| Strategic Posture | 24 | 66 | 44,00 | 84 | 56,00 |
| Strategic Posture | 27 | 57 | 38,00 | 93 | 62,00 |
| Strategic Posture | 28 | 84 | 56,00 | 66 | 44,00 |

Source: Research Data



From Table 1, the entrepreneurial responses show that questions 4, “I would like this business to grow into a strong company” and 8, “A plan should be written to be effective” stand out, both with 91.3% frequency, occupying the first position in the ranking of answers. In the second position, with 75.3% frequency, is question 12, “I would be the one who has to think and plan.” These results reaffirm the findings of Penz et al. (2014) and Tormen et al. (2015), since in their research questions 4 and 8 also appear in the top 3. Table 1 also shows the responses without entrepreneurial characteristics related to the Strategic Posture (SP) construct drawn from the CEI. In this regard, there is question 21, “nothing about running a business is always routine”, with 78.7% occupying the first place of these items of the referred construct. The second position is occupied by question 9, “I would divide my time between this business, family and friends” with 59.3% frequency. These results corroborate findings by Penz et al. (2014) and Tormen et al. 2015).

For Culti-Gimenez et al. (2006), the dimension Propensity to Innovation (PI), can be considered this dimension as a fundamental condition to the act of entrepreneurship, being a fundamental condition to the recognition of opportunities regarding creativity and improvement of the business as a whole. Freitas et. al. (2009), state that the Propensity for Innovation (PI), as a dimension of the ERC, investigates the incorporation of innovative aspects in its entrepreneurial actions. Table 2 presents the entrepreneurial characteristics related to the construct Propensity to Innovation (PI), obtained through this study.

Table 2 - Map of the Respondents' Entrepreneurial Characteristics - Propensity to Innovation (PI)

| Construct | Questions CEI | Answers WITHOUT Characteristics | | Answers WITH Characteristics | |
|--------------------------|---------------|---------------------------------|-------|------------------------------|-------|
| | | Frequency | % | Frequency | % |
| Propensity to Innovation | 17 | 64 | 42,70 | 86 | 57,30 |
| Propensity to Innovation | 19 | 67 | 44,70 | 83 | 55,30 |
| Propensity to Innovation | 22 | 105 | 70,00 | 45 | 30,00 |
| Propensity to Innovation | 25 | 46 | 30,70 | 104 | 69,30 |
| Propensity to Innovation | 33 | 45 | 30,00 | 105 | 70,00 |

Source: Research Data

According to Table 2, in the answers with entrepreneurial characteristics, it is observed that question 33, “it is more important to see possibilities in situations”, frequently stands out on 70% of respondents. Second place is question 25, “I love the idea of trying to outsmart competitors,” with a 69.30% response among the individuals in the sample. In the answers without entrepreneurial characteristics,



question 22, “I prefer people who are realistic”, reached the highest number of answers (70%). Followed by questions 19, “I think standard operating procedures are crucial” and 17 “I try to establish standard procedures to get things right,” which reached 19.44% and 17.42% respectively. These results confirm the findings of Tormen et al. (2015) and partially corroborate with those of (Penz et. Al., 2014).

Regarding the Personality Traits (PT) construct, also called the need for achievement, Culti-Gimenez et al. (2006) define it as a social motivation. Therefore, the individual with high need for accomplishment, demonstrates the desire to perform difficult tasks, seeking to achieve bold goals, with continuous effort in order to maintain a high standard of performance. Table 3 depicts the entrepreneurial characteristics related to the Personality Traits (PT) construct obtained through this study.

Table 3 - Map of the Respondents' Entrepreneurial Characteristics - Personality Traits (PT)

| Construct | Questions CEI | Characteristics | | Characteristics | |
|--------------------|------------------|-----------------|-------|-----------------|-------|
| | | Frequency | % | Frequency | % |
| Personality Traits | 2 | 62 | 41,30 | 88 | 58,70 |
| Personality Traits | 3 | 86 | 57,30 | 64 | 42,70 |
| Personality Traits | 6 | 68 | 45,30 | 82 | 54,70 |
| Personality Traits | 7 | 25 | 16,70 | 125 | 83,30 |
| Personality Traits | 10 | 44 | 29,30 | 106 | 70,70 |
| Personality Traits | 13 | 116 | 77,30 | 34 | 22,70 |
| Personality Traits | 14 | 82 | 54,70 | 68 | 45,30 |
| Personality Traits | 15 | 87 | 58,00 | 63 | 42,00 |
| Personality Traits | 16 | 51 | 34,00 | 99 | 66,00 |
| Personality Traits | 18 | 91 | 60,70 | 59 | 39,30 |
| Personality Traits | 29 | 75 | 50,00 | 75 | 50,00 |
| Personality Traits | 32 | 71 | 47,30 | 79 | 52,70 |

Source: Research Data

As shown in Table 3, it is observed, in the entrepreneurial responses, that question 7, “I would not rest until we were the best”, occupies the first place in the items of this construct according to the respondents, with 83.3%.of frequency. Second is question 10, “I tend to let my head rule my heart,” with a 70.7% response among the individuals in the sample. The results obtained in this study partially corroborate the studies of (Penz et al., 2014; Tormen et al. 2015).

In the questions without entrepreneurial characteristics of the Personality Traits (PT) construct, the first position is occupied by question 13, “the people who worked for me would like me” with 77.3%. Followed by questions 18, “I think it's important to be optimistic,” and 3 “I wouldn't start this business if I wasn't sure it would be successful,” with 60.7% and 57.3% response frequency respectively. These results



partially corroborate the findings of Tormen et al. (2015), because they obtained higher answers in questions 15, 3 and 13. Regarding the work of Penz et al. (2014) the convergence of results is only found in question 13, which occupies the third place in the authors' research.

Finally, the CEI scale presents the Propensity to Risk (PR) construct, which for Freitas et al. (2009), this dimension is associated with the possibility that an event does not occur as planned. This feature is considered inherent to the entrepreneur, since designing and managing a business company is itself a risky activity. In this sense, the Propensity to Risk (PR) dimension investigates a greater propensity to dare or risk. Table 4 depicts the entrepreneurial characteristics related to the Propensity to Risk (PR) construct obtained through this study.

Table 4 - Map of the Responents' Entrepreneurial Characteristics - Propensity to Risk (PR)

| Construct | Questions CEI | Answers WITHOUT Characteristics | | Answers WITH Characteristics | |
|--------------------|---------------|---------------------------------|-------|------------------------------|-------|
| | | Frequency | % | Frequency | % |
| Propensity to Risk | 26 | 57 | 38,00 | 93 | 62,00 |
| Propensity to Risk | 30 | 12 | 8,00 | 138 | 92,00 |
| Propensity to Risk | 31 | 50 | 33,30 | 100 | 66,70 |

Source: Research Data

From Table 4, it can be seen that in the questions where respondents have entrepreneurial characteristics, the first place is occupied by question 30, "If you want a business to grow, you have to take some risks", with 92% of frequency. Followed by question 31, "I really wouldn't miss working for someone," with 66.7%. These results partially corroborate findings by Penz et al. (2014) and Tormen et al. (2015), since in both studies question 30 ranked first among the answers of their interviewees.

When it comes to the answers without entrepreneurial characteristics, question 26, "the best approach is to avoid risk as much as possible" comes first, with 38% frequency. Second place, with 33.3%, belongs to question 31, "the thing I would miss most about working for someone would be safety". These results partially corroborate those found by Penz et al. (2014) and Tormen et al. (2015), because in both findings the question 31 occupies position between the first and second place in the choice of respondents.

Regarding the results of the sample in the CEI, individuals have an average entrepreneurial potential of 19.73 points, which puts them above the theoretical



average of the scale (16.5), standard deviation of 3.51, median 20 and mode 19. The distribution of the sample results in the ERC had a minimum value of 11 points and a maximum of 30 points. By distributing the respondents in the three existing classifications on the scale, we obtained: a) 127 entrepreneurs (84.67%); b) 16 micro entrepreneurs (10.67%) and c) 7 entrepreneurial macros (4.67%).

Upon the application of the CEI scale to students, besides revealing the entrepreneurial profile of students according to the scale used, also partially corroborates the studies by (Inácio Junior & Gimenez (2004), Culti-Gimenez et al. 2006; Penz et al 2014; Tormen et al 2015).

Thus, once identified the entrepreneurial potential of the respondents, we sought to establish relationships between the variables in order to identify whether any characteristic of the individual profile provides a particular entrepreneurial potential. For this, the statistical technique of analysis of variance (ANOVA) was used. According to Hair et al. (2009, p. 304), ANOVA is used when the objective is “to determine if samples from two or more groups come from populations with equal averages”. In this sense, the aim is to identify if the averages of the groups differ significantly.

This way, the entrepreneurial potential was established as a dependent variable and the independent variables were: gender, age, semester of the course, owning occupation, owning a company, intention to start a company and participating in workshops offered by IES. Following, Table 5 summarizes the values of “p”.

Table 5 - ANOVA for Profile Characteristics x Entrepreneurial Potential

| Characteristic | Sum of the Squares | df | Average of the Squares | F | Sig. |
|------------------------------|--------------------|----|------------------------|------|-------|
| Gender | 32,35 | 1 | 32,35 | 2,66 | 0,105 |
| Age | 118,91 | 6 | 19,82 | 1,66 | 0,136 |
| Semester | 141,19 | 7 | 20,17 | 1,69 | 0,115 |
| Occupation/Not | 1,36 | 1 | 1,36 | 0,11 | 0,741 |
| Own a company | 1,93 | 1 | 1,93 | 0,16 | 0,694 |
| Intention to start a company | 20,48 | 2 | 10,24 | 0,83 | 0,438 |
| Participating in workshops | 0,40 | 1 | 0,40 | 0,03 | 0,857 |

Source: Research data



Considering the value of “p” as 5%, the profile characteristics listed above were individually analyzed. It was found that the results obtained did not present statistical differences between the three levels of entrepreneurial potential of the respondents. Thus, it is not possible to state that the profile characteristics analyzed and the participation in training workshops offered by the HLEI have an influence on the entrepreneurial potential of the surveyed individuals. After completing the analysis of the research data, the following chapter deals with the concluding remarks of this study.

6 CONCLUDING REMARKS

Initiating from the theoretical model proposed by Carland, Carland & Hoy (1992), the study analyzed the contribution of entrepreneurship education in the development of entrepreneurial potential of university students in a private higher level education institution in Ceará.

The teaching plans of the academic subjects of all semesters of the course were analyzed in order to identify which ones contained some content that addressed entrepreneurship themes and thus categorize the teaching strategies used to work in the classroom. We identified 17 subjects that address content that contribute to entrepreneurial training and use various teaching methodologies, including: lectures, seminar presentation, case study, readings and discussions of articles/texts, exercises and games. Regarding the constructs measured by the CEI, it was found the presence of the four dimensions proposed by the authors, as follows: Strategic Posture (PE); Propensity to Risk (PR); Personality Traits (PT) and Propensity to Innovation (PI). It is meaningful to note that these findings corroborate the results of Penz et. al. (2014) and Tormen et. al. (2015). Regarding the classification of entrepreneurial potential according to the CEI, there is a predominance of individuals classified as entrepreneurs, 84.66%. According to the theoretical framework, these individuals, when doing business, aim profitability and evolution of their enterprises. However, as it is in the middle range of the scale, its behavior is difficult to predict. The second most found entrepreneurial potential rating was that of micro-entrepreneurs, with 10.67% of the sample. In their endeavors, these individuals seek self-employment, quality of life, and personal and family support. Entrepreneurial macros constituted 4.67% of the sample; individuals within this level of the CEI scale are characterized by seeking to be the first in the market where they operate through



an innovative and creative posture, wishing for social and financial rewards due to the achievement of their business companies.

The Analysis of Variance (ANOVA) was performed to identify if any characteristic of the individual's profile provided a certain entrepreneurial potential. Nonetheless, with a “p” of 5%, the obtained results did not show statistical differences between the three entrepreneurial potential levels of the respondents. Such results indicate normality among the data. Therefore, it is not possible to affirm that the profile characteristics analyzed influence the potential entrepreneurial results found in this study.

The research results demonstrate that the work methodology of the teachers of the academic subjects that approach entrepreneurship themes needs a higher degree of commitment than the traditional role of the university professor. Active methodologies should be advocated. The student needs to learn by doing, through experimentation, reflection and practice, aiming to awaken in the student their entrepreneurial potential. The result of this approach is realized when most students attribute the origin of their entrepreneurial intention to university education. Thus, pedagogical involvement should be differentiated in this teaching-learning process, seeking greater coherence with the role that the entrepreneur plays in society.

Notice that to practice entrepreneurship, it is essential to have experience, dynamism and faculty preparation, as the field is complex and has several peculiarities. On the other hand, there must be participation and willingness of the student to want to participate in the activities. In order to overcome this obstacle, the faculty needs to be increasingly prepared and be aware to the type of audience that they are dealing with and consequently what methodology/technique they are using.

Regarding the educational institution researched, it was possible to perceive the offer of academic subjects, content and approaches that favor the development of entrepreneurial potential. However, there is a necessity for greater contact with experiences, practical experiences and examples, as well as interaction with entrepreneurs, as there are few academic subjects that advocate such actions. It is believed, that this way, the academy may contribute to better formation and development of the potential of its student body.

As to HLEIs, it is necessary that they have structures that aim to facilitate and accelerate the process of development of entrepreneurial potential in Brazil, aiming at the consequent economic development. In this sense, entrepreneurship and the



entrepreneur actually play the driving force of the economy. On the other hand, the role of the state in social and economic development must also be considered, because even though the entrepreneur is configured as a social agent capable of developing the local/regional economy, this individual alone will not be able to solve all problems of this same locality.

With reference to the limitations of this study, it is noteworthy that, due to the application of the questionnaires occurring near the evaluation period of the second stage of the semester, many students were not found in the classroom or were unwilling to answer the survey truthfully, resulting in 21 forms (12.28%) out of 171, purged from the sample because they were incomplete or incorrectly completed. Another relevant aspect is that the entrepreneurial potential was measured through a closed and self-filling instrument, which does not take into account the background of the individuals surveyed. The application of additional techniques such as interviews with participants would serve as a comparison between the IEC and the discourse of individuals. Finally, it is important to mention as a limitation the fact that the frequencies of Entrepreneurial potential (127), Micro-entrepreneur (16) and Macro-entrepreneur (7) are very different from each other. If analysis of variance (ANOVA) were performed with similar frequencies, it would provide more reliable results to the study.

It is suggested for further research to perform the triangulation between the views of the teacher, student and course coordination. As well as the analysis of the entrepreneurial intentions of the students who mention the intention to start their own business, as well as a longitudinal study to measure the entrepreneurial potential and map the entrepreneurial skills of these students after graduation.

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