

# What does entrepreneurship education look like in Brazil?

## An analysis of undergraduate teaching plans

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### Abstract

**Purpose** – This paper aimed to describe and analyze the contents and methodologies of entrepreneurship education in undergraduate courses in higher education institutions in Brazil.

**Design/methodology/approach** – The teaching plans of 113 undergraduate entrepreneurship courses were surveyed and reviewed. Data were subjected to descriptive and content analyses.

**Findings** – Courses are offered by public and private universities in Brazil in 56 undergraduate programs in several fields. Lectures are among the main teaching methodologies employed, being mentioned in 98% of the teaching plans analyzed. There is a broad use of active methodologies. About 75% of the contents covered in the courses refer to declarative knowledge of basic concepts and theories and enterprises creation and management skills. The survey showed that 50% of the teaching plans addressed content related to business modeling, and only 18% of these mentioned the use of business model canvas. In addition, contents such as prototyping, minimum viable product, design thinking and pitch are mentioned in less than 20% of the teaching plans analyzed.

**Originality/value** – The article contributes to the advancement of the entrepreneurship education theory as it presents a new way to classify the contents of entrepreneurship courses, in light of educational theories, using learning taxonomies. It identifies the main contents, resources, methodologies, evaluation methods and bibliographies used in undergraduate entrepreneurship courses in Brazil. Moreover, it is the very first article that analyzes this number of teaching plans in Brazil with these categories of analysis. In practical terms, the article contributes to improve the entrepreneurship courses offered.

**Keywords** Entrepreneurship education, Teaching plans, Learning taxonomies, Entrepreneurship education in Brazil

**Paper type** Research paper

### Introduction

Entrepreneurship education helps developing individuals to start new ventures, ensuring they have the tools and knowledge required to succeed in this activity. It also means inspiring individuals to be more innovative in the companies where they work (Mwasalwiba, 2011). As such, entrepreneurship education is elementary to the economic development of the society as it fosters job creation and productivity increase (van Praag and Versloot, 2007). Despite the existing consensus that entrepreneurship could be taught (Kuratko, 2005; Mwasalwiba, 2011), few articles analyze contents addressed in the entrepreneurship courses (Edelman *et al.*, 2008).

Fayolle (2013) points out that the poor descriptions of contents approached in the courses, the lack of common theories among them and the lack of taxonomy for entrepreneurship education hinder the legitimacy of the field. The author suggests that contents and methodologies of the courses should be investigated and discussed in the light of educational psychology or the literature on education as these should be analyzed in terms of levels of complexity of intended learning outcomes and types of knowledge addressed in the courses.

The use of taxonomies for educational objectives, such as that of Anderson *et al.* (2001) that suggests hierarchizing learning outcomes into different levels of cognitive processes, such as knowing, understanding, applying, analyzing, evaluating and creating and into



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different types of knowledge, which can be facts, concepts, theories, procedures, and metacognitive strategies, could facilitate these analyses. The selection of teaching strategies and methodologies should respect the nature and degree of complexity of the contents (Gagné and Medsker, 1996). Active methodologies involving simulation and hands-on activities are recommended when skills involve creation, evaluation and analysis (Anderson *et al.*, 2001), which are crucial for any student to become an entrepreneur.

There is a gap between what entrepreneurs should know and what is effectively taught in courses (Henry *et al.*, 2005). Edelman *et al.* (2008) compared the activities performed by entrepreneurs when starting their businesses with the contents of books used in the courses and identified great discrepancy between theory and practice, with many activities neglected in courses. The authors also reported that various contents are approached only theoretically and fail in teaching students how to actually perform such activities. There is a need for a more practical approach to teach entrepreneurship beyond business planning because student demand goes beyond that (Lima *et al.*, 2014).

Research considering the Brazilian challenges evidence that Brazilian students have higher levels of entrepreneurial intention and are significantly more motivated to take entrepreneurship courses when compared to students from other countries. Also, about 50% of Brazilian students are potential entrepreneurs and have positive attitudes toward entrepreneurship (Lima *et al.*, 2014), which represents a great opportunity to teach and disseminate entrepreneurship in the country.

Considering the aforementioned, this paper aimed to describe and analyze the contents and methodologies of entrepreneurship education used for undergraduate courses in higher education institutions in Brazil. To that, teaching plans of undergraduate courses were surveyed and reviewed through descriptive statistics and content analysis.

The research advances Edelman *et al.* (2008) since the paper analyzes teaching plans rather than being restricted to textbooks used in the courses. It analyzes contents in the light of the taxonomies addressed by Anderson *et al.* (2001), contributing to the creation of a common taxonomy for entrepreneurship education. It also points out the current setting of undergraduate entrepreneurship courses in Brazil, allowing an analysis of what contents are approached, methodologies and resources used, as well as how evaluation is conducted. Therefore, the contributions of the article ensure the progress of entrepreneurship theory and teaching practices.

### **Entrepreneurship education**

Entrepreneurship courses aim to expand the number of individuals who know what entrepreneurship means and help individuals to become entrepreneurs, develop managerial and technical skills, develop entrepreneurial skills and generate results that foster the economic development of society (Maritz and Brown, 2012). The main goal of entrepreneurship education is to develop the mindset, skillset and practice necessary to start new ventures, even though its outcomes go farther (Neck and Corbett, 2018).

Fayolle and Gailly (2008) propose three dimensions that should guide the contents of entrepreneurship education: professional, spiritual and theoretical. The professional dimension relies on three types of knowledge: know-what, know-how and know-who. The spiritual dimension enables individuals to position themselves in the entrepreneurial phenomenon and focuses on two aspects: know-why and know-when. And the theoretical dimension refers to theories and scientific knowledge that are useful to understand the entrepreneurial phenomenon. Therefore, according to the authors, depending on the audience and objectives of the courses, entrepreneurship courses should be a combination of the three dimensions (professional, spiritual and theoretical).

There is a gap between what is taught and what entrepreneurs effectively should know and, many times, what seems to be a key area for educators seems to be of little relevance to

students (Henry *et al.*, 2005). Edelman *et al.* (2008) compared the contents of textbooks used in entrepreneurship courses and the hands-on activities performed by nascent entrepreneurs. They found that hands-on activities performed by nascent entrepreneurs, such as raw materials purchase, contact with suppliers, hiring and training of employees, distribution, dissemination of the new product or service, find the proper facilities and formalization are not mentioned in most books, pointing to discrepancies between what is taught and what is practiced.

Fiet (2000), in a survey with entrepreneurship teachers, identified six main topics usually addressed in entrepreneurship courses, namely: competitive strategy analysis, growth management of existing companies, generation and discovery of ideas, risks, finances and creativity. Mwasalwiba (2011), in turn, through a broad review of literature identified that the most addressed topics in entrepreneurship course are resource acquisition, finances, marketing, idea generation, opportunity recognition, business planning, management, human resources, creation of new businesses, legal issues, family businesses, franchises, negotiation skills, communication and problem solving.

Fayolle (2013) found that the contents of entrepreneurship courses tend to approach opportunity-centered content related to the entrepreneurial process (identification, evaluation and exploitation of opportunity). The use of business plan as support to the creation of new ventures is also researched. Those are the main topics because educators have approached entrepreneurship as a linear process. However, entrepreneurship is not a linear process. It is unpredictable and uncertain (Neck *et al.*, 2014).

Therefore, Neck and Greene (2011) recommend approaching entrepreneurship as a method, taking students beyond understanding and talking about entrepreneurship, to effectively start acting on it, to become entrepreneurs and put in practice what they have learned. Courses should also prepare students to handle with unpredictable situations or deal with failure, providing them with real world experiences (Bauman and Lucy, 2019, in press).

Entrepreneurship education demands both hands-on and theoretical activities. Hands-on activities are necessary to provide experience and help students to simulate their future activities; theory is necessary to provide them with a suitable framework to handle with uncertainty and failure (McNally *et al.*, 2018). According to Neck and Corbett (2018), following are the hands-on activities of entrepreneurship: new ideas generation; use of design thinking; customer development; customer acquisition; sales; experimentation; contracts negotiation; pitching ideas; prototyping; creating a minimum viable product; developing and testing business models and actually starting a venture.

Still, many entrepreneurship textbooks do not provide good balance between theory and practice and present entrepreneurship as a process that relies on business plans (McNally *et al.*, 2018). Therefore, better understanding the entrepreneurial process is crucial. This topic is approached in the next section.

### **Entrepreneurial process**

According to Gartner (1985), a company comes into being from four interrelated dimensions: (1) the individual, who is the person involved in starting the new venture; (2) the organization, which is the type of company that will be started; (3) the environment, which is the setting around the organization that will influence it and (4) the process, which involves actions taken by the individual to start the new venture. Based on literature, the author identified six actions taken during the early years of a new business, which do not necessarily occur in the following order: (1) entrepreneur finds a business opportunity; (2) entrepreneur gathers resources; (3) entrepreneur sales products and services; (4) entrepreneur manufactures products; (5) entrepreneur builds an organization and (6) entrepreneur responds to government and society.

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Studying the development of companies through entrepreneurial teams, [Clarysse and Moray \(2004\)](#) designed a 4-stage entrepreneurial process model. The first stage is that of idea. According to the authors, during this period entrepreneurs plan how the company will look like and establish contacts with potential partners, either to be external partners of the organization or to become part of it. The end of this stage is marked by the business plan completion; start-up capital negotiation and entrepreneur team building.

The second stage of [Clarysse's and Moray \(2004\)](#) model, lasting about one year, is the pre-start-up phase, when members of the organization start executing the business plan designed in the previous stage. In the next stage, start-up, the business is focused on establishing its physical structure and on operational issues, centered on attracting potential customers and adjusting planning after the effective entry into the market. According to [Clarysse's and Moray \(2004\)](#) model, once the start-up phase is over, the company enters the consolidation or post-start-up stage, completing the initial stages where the focus is on continuing and developing the business previously created. In this stage, the company objectives would be to expand the customer base and develop new products.

[Borges et al. \(2008\)](#), in their research focused on understanding the creation of companies by youth, i.e. by individuals under 35 years of age, designed a model of 4-stage entrepreneurial process. Stage 1, initiation, consists of business opportunity identification; brainstorm and development of the business idea and decision to create the business. In stage 2, preparation, the business plan is drafted; market study is performed; financial resources are mobilized and the entrepreneur team is formed. Then, in stage 3, launching, the company is legally constituted; facilities and equipment are organized; first product or service is developed; first employees are hired and the first sale takes place. Finally, in the fourth stage, consolidation, promotion and marketing activities are carried out; products and services are widely marketed; break-even is reached and new business management activities are developed.

Such entrepreneurial process models follow the causal logic that entrepreneurs set goals, identify market opportunities, evaluate opportunities and select those that will maximize return. To that, they plan the activities required to fulfill the objectives defined ([Sarasvathy, 2001](#)). According to Sarasvathy, in the causal logic the entrepreneur believes that future can be predicted and controlled through planning.

[Sarasvathy \(2001\)](#) presented the effectual logic – inverse to the causal logic since the entrepreneur has a generic business idea and identifies the resources available and how much they are willing to lose. Based on that they interact with potential stakeholders and make changes to the initial idea, grounded on feedback received. Thus, the focus is on testing the idea rather than on its initial planning because “as we can control the future, we do not need to predict it” ([Sarasvathy, 2001](#), p. 251).

According to the effectual logic, entrepreneurs start with what they know and who they know to identify what they can do. Instead of thinking about how much would be the ideal investment to start the business, they identify how much they are willing to lose if all goes wrong. Moreover, rather than extensively planning and setting goals, entrepreneurs should talk to as many people as possible and test their ideas to identify as soon as possible what changes are needed, according to the feedback received ([Sarasvathy, 2001](#)).

From then on, many emerging theories have been used, such as the lean startup ([Ries, 2011](#)), business modeling ([Osterwalder and Pigneur, 2010](#)) and customers development ([Blank and Dorf, 2012](#)). [Blank and Dorf \(2012\)](#) and [Ries \(2011\)](#) encourage the initial contact with customer by testing the minimum viable product prototypes to gain market feedback and successfully cater to them. According to [Ries \(2011\)](#), startups come into being in an environment of uncertainty and have nothing but hypotheses about market and customer. These hypotheses must be tested to allow quick learning and interacting, making the required changes. This test-learning cycle increases the chances of success and survival of the venture.

Osterwalder and Pigneur (2010), in turn, propose the use of a business model framework known as Business Model Canvas, a flexible tool that allows testing the business hypotheses before developing the business plan. According to the authors, the business model is defined as “the way organizations create, deliver and capture value” (Osterwalder and Pigneur, 2010, p. 14). The business model canvas is composed of nine steps (customer segments, value propositions, channels, customer relationships, revenue streams, key resources, key activities, key partnerships, costs structure and revenue sources), showing how several components and parts of the company correlate to ensure the delivery of value proposition to customers.

Following the logic of customer testing to deliver value proposition, the design thinking is also gaining ground. According to Brown (2008), design thinking is a human-centered approach to innovation that integrates people’s needs with the company’s possibilities in an attempt to increase the chances of business success. The design thinking process occurs in three major stages: inspiration, ideas generation and implementation (Brown, 2008). In the first stage, inspiration, social problems demanding solution or potential opportunities for innovation are identified. In the second stage, ideas generation, techniques such as brainstorming are used to generate many ideas that should be tested through prototypes to identify if they will work. Implementation, in turn, puts in practice the solution considered to be the best option.

Educators that rely on causal processes tend to adopt teaching methods such as traditional lectures, cases, discussions, business plans drafting and simulations, whereas educators that rely on effectual processes tend to use design thinking, customer development, prototyping, developing and testing business models as part of their courses (Neck and Greene, 2011; Neck and Corbett, 2018).

The entrepreneurial process stages, either in causal or effectual logic, demand teaching a wide range of skills of different complexity levels to undergraduate students, ranging from declarative knowledge of concepts and procedures to the ability of creating to perform testing with customer. Therefore, entrepreneurship education should lend instructional psychology theories that could facilitate the definition of learning taxonomies with varying levels of complexity (Fayolle, 2013), ensuring common taxonomy across courses and facilitating the measurement of outcomes.

### **Learning outcomes and taxonomies of educational objectives**

The contents taught in entrepreneurship courses approach different levels of complexity and types of knowledge that demand different teaching strategies and methods (Gagné and Medsker, 1996). Learning outcomes taxonomies distinguish declarative knowledge from procedural knowledge. The first refers to the learning and storage of knowledge about objects, facts, concepts, theories, people, images and events, while the second type of knowledge refers to know-how, procedures and stages of an activity (Reigeluth, 1999; Anderson *et al.*, 2001).

Declarative knowledge includes learning verbal information that can be learned and memorized through educational strategies of repetition, reading, dialogued oral presentation, concept mapping, among others. On the other hand, besides these more passive educational strategies, procedural knowledge requires the use of active methodologies that imply active student participation in hands-on exercises that develop the skills needed to solve problems in different contexts and the creation of new ways of acting (Anderson *et al.*, 2001).

Teaching entrepreneurial skills also includes activities focused on concept learning (entrepreneurship, entrepreneurial skills, innovation, creativity), theories (entrepreneurial action, entrepreneurial process) and facts, which include analysis of economic, social and cultural context variables, among other factors that can either facilitate or hinder the

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entrepreneurial action. According to educational approaches, declarative knowledge is a prerequisite for learning more complex skills and competencies such as designing and creating a new venture or business model. This knowledge is procedural and requires active methodologies that place the student as core player in actions similar (of simulation) or identical to those required from an entrepreneur at any stage of the entrepreneurial process [Anderson et al. \(2001\)](#).

In addition to these contents, methodologies and techniques of self-knowledge and self-assessment have been adopted as a method for developing entrepreneurial skills and competences in entrepreneurship education. These skills can be classified as metacognitive strategies ([Anderson et al., 2001](#)) as they include learning complex intellectual skills that require teaching strategies focused on self-monitoring, self-assessment and learning-to-learn strategies.

### Method

This research is descriptive, qualitative, based on archival sources of information. The teaching plans for undergraduate entrepreneurship courses were searched in two ways: upon direct request to undergraduate professors from the researcher's contact network and by searching websites of higher education institutions throughout Brazil, according to the information provided on the MEC ([Ministry of Education of Brazil, 2018](#)) Website. Search took place from January to May 2018.

Initially, a sample of 129 teaching plans was obtained. Only the teaching plans of undergraduate courses ( $N = 113$ ) were included in the analysis. The remaining 16 teaching plans were excluded from the sample because 9 (nine) were for postgraduate, master's and doctorate courses, 3 (three) were teaching plans for short-term technical courses and 4 (four) were incomplete, missing information about the university, year of publication, content and/or name of the responsible professor.

The data contained in the 113 teaching plans were transcribed into an Excel spreadsheet, organized according to the following topics: year of publication; university; course name; syllabus; general goal; specific goals; contents; teaching methods; supporting resources; evaluation used; basic and complementary bibliography. These variables were submitted to descriptive statistical analyses.

The teaching plans content was subjected to content analysis based on [Bardin's \(1977\)](#) method. The first stage of the analysis included floating reading of the material and identification of topics and content categories of the teaching plans by three independent researchers, selected among teachers seasoned in entrepreneurship education and document analysis techniques. The definitions of content categories extracted from the teaching plans were designed based on theoretical references about entrepreneurial process, entrepreneurial profile and competences and entrepreneurship education and taxonomies of learning outcomes ([Anderson et al., 2001](#); [Gagné and Medsker, 1996](#); [Reigeluth, 1999](#)). The approaches to educational objectives hierarchization proposed by ([Anderson et al., 2001](#)) supported the analysis of the types of content taught in courses (concepts, theories, facts, metacognitions) and the complexity levels of that learning (knowledge, understanding, application, analysis, evaluation and creation).

Six content categories were identified: declarative knowledge of basic concepts; declarative knowledge of entrepreneurship theories; factual and contextual knowledge; entrepreneurial skills and profile; knowledge and skills on enterprise creation; knowledge and skills on enterprise management.

The second stage included the classification of contents in the categories identified by three other doctoral professors, who teach entrepreneurship in undergraduate courses. They were given a spreadsheet with each content in a row and the definitions of each category, and should classify contents according to each category.

In the third stage, a comparative analysis of the content categories identified by the three evaluators was performed. Agreement was 96%. Items that did not agree were submitted to the analysis by a committee, made up by three entrepreneurship professors and researchers chosen for convenience. They were responsible for identifying and defining the categories. Then, in the fourth stage, the occurrence of these categories in the teaching plans was analyzed.

## Results

Teaching plans varied in relation to year of publication (2002–2018). 28 teaching plans missed information on the year of publication. Among the teaching plans, we found 22.9% of the entrepreneurship courses were offered by private higher education institutions and 70.8% by public educational institutions, based in 16 federation units belonging to the five geographic regions of Brazil. In 91.15% of the teaching plans there was no information regarding the compulsory or elective character of the entrepreneurship course. Among the remaining teaching plans, 4.42% stated that the course is compulsory and 4.42% that it is elective.

Teaching plans are from 56 different university courses, and the highest concentration of courses (26%) is found in business administration and 15% in engineering programs. Nine plans refer to courses offered to various courses as common core. Moreover, 10 teaching plans did not report to which course they are bound. Among the most used names of courses, the word entrepreneurship was included in 67 (59%) of the teaching plans, and in 27 (24%) the name of the course also contains other related topics such as innovation, business management, marketing management, among others. The other names refer to management, creation, conception, planning, business implementation, entrepreneurial culture, entrepreneurial actions, creativity and small business management, among others.

The duration of the courses ranges from 20 to 132 h, and 66% of these are shorter than 6 h and 44% have 64 h or more. In 10 teaching plans, the duration of the course was not disclosed. Only 39 (34%) teaching plans disclosed in which period of the course the course is delivered, and courses are equally distributed over periods (from the first to the eighth). Additionally, 86 (76%) teaching plans presented the contents schedule but did not disclose details on date, and 21 (19%) presented the schedule with the dates defined. The other ones did not show the schedule. Among the teaching plans analyzed, 99 (88%) presented the course syllabus and 14 (12%) did not. 111 (98%) presented the general goal, and only 39 (34%) disclosed the specific goals.

The teaching plans referred to the resources used to deliver courses, and the prevailing ones were data show, board, brushes and texts (47%). The following resources were also mentioned: video, multimedia, case studies, books, Internet, computer, software, TVs, apps, periodicals, newspapers, magazines, business plan scripts, podcasts, speakers, exercise scripts, self-assessment questionnaires, social networks, color pencils and materials for dynamics. Some items have been misclassified as resources, such as labs that refer to location and technical visits, lectures and games that are teaching strategies rather than resources.

Regarding forms of evaluation, individual or group work prevailed, being mentioned in 88 plans (78%), written tests used in 64 (57%) of them, in-class activities (27%), attendance and participation (24%), business plans drafting (22%), seminars (18%) and case studies discussion (10%). The following forms of evaluation were also mentioned: reports (8%), oral assessment (6%), reviews (6%), directed study (5%), canvas (5%), debates (4%), reading (4%), performance self-assessment (3%), pitch competition (3%), field activities (2%), entrepreneur interviews (2%), concept map (2%), article drafting (2%), balanced scored card evaluation (1%), project briefing (1%), startup creation (1%), charitable undertakings creation (1%), consumer interviews (1%), prototyping (1%) and distance learning forums (1%).

31 different teaching methodologies were reported, of which 21 are active methodologies, 7 are passive methodologies and 3 could not be classified. Active methodologies refer to the set of educational strategies that involve active student participation and interaction with materials and people (professors, other students, entrepreneurs, potential customers, etc.) that may occur in and out of the classroom. The most cited active methodologies in the teaching plans were: group works (used in 41% of the courses), case discussion (33%), debates (30%), seminars (26%), group dynamics (14%), technical visits (10%), business plan drafting (8%), field work (8%).

Other active methodologies less cited were: hands-on exercises (6%); entrepreneur interviews (4%); film analysis (4%); canvas (3%); role play (3%); article drafting (2%); consumer interviews (2%); problem-based learning (1%); gamification (1%); pitch competition (1%); inverted classroom (1%) and design thinking (1%).

Passive methodologies, in turn, refer to educational strategies in which the student predominantly listens, observes or writes about the contents. The passive methodologies most cited in the teaching plans were lectures (used in 98% of the courses), directed reading (35%), speeches (14%), text analysis (12%) and laboratory classes (4%). The other passive methodologies presented were text production (2%), class record (2%). Some methodologies could not be classified as active or passive as these were superficially described. These are: in-class exercises, research and individual work.

Books and materials indicated in basic and complementary bibliographies were identified. There is a dispersion of bibliographies used since 419 different references are mentioned in the basic bibliography, among articles and books, and 219 different references are mentioned in the complementary bibliography. Among these, only 15 references are mentioned in seven teaching plans or more. [Table 1](#) summarizes the most frequently mentioned references in the basic bibliography of the courses.

Contents approached in the courses were divided into six categories. Category 1 (declarative knowledge of basic concepts) refers to the conceptual fundamentals of entrepreneurship, types of entrepreneurship, related concepts of innovation and creativity and has as subtopics: what is entrepreneurship; creativity; innovation; female entrepreneurship; social entrepreneurship; intrapreneurship. Category 2 (declarative knowledge of entrepreneurship theories) refers to theories about the entrepreneur's motivational and competency profiles and management theories.

Reference	Number of plans using it
Dornelas (2005). Empreendedorismo: Transformando ideias em negócios	35
Dolabela (2008). O Segredo de Luísa	20
Drucker (2003). Inovação e espírito empreendedor: Prática e princípios	16
Hisrich <i>et al.</i> (2009). Empreendedorismo	15
Chiavenato (2008). Empreendedorismo: Dando asas ao espírito empreendedor	14
Bernardi (2009). Manual de empreendedorismo e gestão: Fundamentos, estratégias e dinâmicas	12
Dolabela (1999). Oficina do Empreendedor	10
Baron and Shane (2011). Empreendedorismo: Uma visão do processo	9
Hashimoto (2006). Espírito empreendedor nas organizações	7
Maximiano (2009). Administração para Empreendedoras: Fundamentos da criação e da gestão de novos negócios	7
Salim <i>et al.</i> (2003). Construindo planos de negócios	7
<b>Source(s):</b> Prepared by the author	

**Table 1.**  
Most frequently mentioned references in the basic bibliography



Category 3 (factual and contextual knowledge) refers to the set of contextual, historical, political, economic, social, cultural factors that influence the creation and maintenance of ventures and business-supporting and monitoring systems. Category 4 (competences and entrepreneur profile) refers to learning at the conceptual and metacognitive (self-knowledge) level of the entrepreneur profile in terms of knowledge, skills, attitudes, motivations and other individual entrepreneur willingness associated with successful entrepreneurial careers.

Category 5 (knowledge and skills on business creation) refers to the business creation process, which involves learning techniques and applying tools to identify and assess opportunities; developing business models and plans; selling and validating the idea among potential customers, suppliers and partners; fundraising; formalization of the enterprise and patent registration. Finally, category 6 (knowledge and skills on enterprise management) refers to the body of knowledge about concepts and theories on marketing management; finances; human resources; production; operations and business strategies as well as the skills of management plan drafting and election of members. Contents approached in the courses did not refer to procedural knowledge. Table 2 shows how often each of these topics is addressed in the courses analyzed.

## Discussion

Courses are structured according to the entrepreneurial process theories that follow the causal logic since the main contents identified in the teaching plans refer to the major stages of the entrepreneurial process, as presented by Borges *et al.* (2008). The effectual logic remains incipient in courses.

Content	Definition	Frequency
1. Declarative knowledge of basic concepts	Conceptual fundamentals about entrepreneurship, innovation, creativity, among others	469 (20.6%)
2. Declarative knowledge about theoretical approaches	Theories about entrepreneurial competences profile, entrepreneurial action, and management theories	57 (2.5%)
3. Factual and contextual knowledge	Set of contextual, historical, political, economic, social, cultural factors, business-supporting systems that influence the creation, implementation and maintenance of the venture	236 (2.4%)
4. Entrepreneur competences and profile	Learning at conceptual and metacognitive (self-knowledge) level about the entrepreneur profile in terms of their knowledge, skills, attitudes, motivations and other individual willingness associated with successful entrepreneurial careers	249 (10.9%)
5. Knowledge and skills on enterprise creation	Business creation process, which involves learning techniques and applying tools to identify and assess opportunities; develop business models and plans; sell and validate the idea among potential customers, suppliers and partners; fund-raise; formalization of the enterprise; and, patent registration	620 (27.2%)
6. Knowledge and skills on enterprise creation	Refers to the body of knowledge about concepts and theories on marketing management; finance; human resources; production; operations and business strategies as well as management plan drafting skills, and election of partners	632 (27.7%)
Others	Unclear or incomplete contents	14 (0.6%)

**Table 2.** Contents approached in entrepreneurship courses

Source(s): Prepared by the author

Figure 1 outlines these results and indicates the contents of courses according to the theoretical frameworks of the area. Contents related to concepts and theories (referring to categories 1 and 2 of the classification presented in Figure 1) are prerequisites for learning more complex competences (Anderson *et al.*, 2001) and, therefore, support the contents of conception, planning, opening and management of the business.

The contents referring to skills on enterprise creation and knowledge and skills about enterprise management were divided into four stages, namely: conception, planning, starting and management of business. Contextual contents are considered to influence all these stages, as shown in Figure 1.

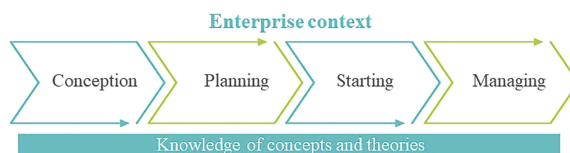
The analysis of the teaching plans makes clear that 98% of the courses use lectures as one of the teaching methodologies, but 21 of the 31 methodologies mentioned in all plans are active. This practice is in line with the recommendations by Henry *et al.* (2005), Jones and Matlay (2011), Neck and Greene (2011). However, as educational objectives are poorly described, one cannot analyze whether the methodologies used are suitable to the proposed learning goals. Pedagogy is not an end itself. It is a way to achieve the goals. The method selection should always depend on the goals of the courses (Fayolle and Gailly, 2008).

Teaching goals should be student-centered and not educator-centered (Fayolle and Gailly, 2008; Neck and Corbett, 2018), but most of the goals analyzed (72%) state what the educator wants to achieve with the course rather than observable changes in the behavior that students will present after the course. Examples of educator-centered goals are “make students aware of entrepreneurship”; “help students to identify business opportunities”, “foster the entrepreneurial spirit”. The student-centered goals, in turn, would be described in terms of competences at different levels of complexity, such as students should be able to “remember sources of business opportunities”; “recognize the characteristics of good business opportunities”; “compare different business segments”; “calculate the required investment”; and “decide if the business opportunity is profitable or not”.

The most widely used textbooks present histories of successful entrepreneurs or deal with entrepreneurship as a linear and causal process, ranging from identifying opportunity to drafting the business plan. When researching the major textbooks used around the world, Neck *et al.* (2014) and McNally *et al.* (2018) found similar results.

Neck *et al.* (2014) reviewed 45 textbooks currently on the market and found that approximately 80% emphasize the approach of entrepreneurship process, with contents like opportunity assessment, business planning, marketing planning, resource acquisition, managing the business and exit. McNally *et al.* (2018) analyzed the content of eight of the most popular EE books in English and identified common pedagogical and learning topics among them. Most of these present similar content and whole chapters devoted to drafting a business plan, with theoretical rationale on how to draft these, but few evidence that support their use out of the classroom.

None of the most used textbooks in the USA was featured in the list of the most used in Brazil. By the way, only one of the textbooks identified by McNally *et al.* (2018), by Baron and Shane (2011), appears in the recommended bibliographies of teaching plans in Brazil. The results of the analysis in Brazil also point out dispersion of the bibliographies used, with more than 400 books indicated. This result is in line with what Fiet (2000) identified almost 20 years



**Figure 1.**  
Categories of contents  
identified in the  
teaching plans

ago, when he pointed out that most teachers do not use the same books since theory about entrepreneurship is not cumulative.

In addition, more than half of the books indicated are mainly in the field of administration or businesses, such as marketing, finances, people management and operations. This could be expected, considering that entrepreneurship is a multidisciplinary field (Neck and Greene, 2011). What happens, however, is that several courses mix up contents of entrepreneurship with those belonging to the field of administration and management, especially in course not belonging to administration courses. The risk is that entrepreneurship education may start following a new paradigm, different from what teachers have been struggling to build, mainly because many of these courses end up being delivered by teachers with no specific training on entrepreneurship (Katz, 2003).

It was found that 57 (50%) plans deal with contents related to business models and 21 (18%) of these deal with business model canvas. Despite that, Osterwalder and Pigneur (2010) were mentioned in the basic bibliography of 12 teaching plans analyzed, and in the complementary bibliography of 6 teaching plans analyzed. This could be a sign that bibliographies are out of date or that courses disregard the main authors on this topic.

Although entrepreneurs are increasingly resorting to the emerging theories of entrepreneurship, such as lean startup, customer development and design thinking, those contents are not frequent in teaching plans. Contents referring to prototyping were mentioned in only 6 teaching plans analyzed, while the minimum viable products were mentioned by only one teaching plan. Design thinking contents were mentioned in only 12 teaching plans and pitch-related contents in 10 plans. These could be indications that entrepreneurship courses in Brazil are outdated, more focused on business plan design than on the elaboration of business model hypotheses and validation of business ideas with potential customers, suppliers and partners, as recommended by Ries (2011), Osterwalder and Pigneur (2010) and Blank and Dorf (2012).

Still, the nonexistence of these contents may indicate that courses are formulated more focused on following the textbooks adopted than on helping students to develop entrepreneurial skills and action. Designing courses only to follow textbooks and teach according to the text means limiting wisdom among students and could limit the generalization of what they have learned in classroom to their entrepreneurial efforts (McNally *et al.*, 2018).

## Conclusions

This paper aimed to describe and analyze the contents and methodologies of entrepreneurship education used for undergraduate courses in higher education institutions in Brazil. To that, the teaching plans of 113 undergraduate entrepreneurship courses were surveyed and reviewed.

It was found that entrepreneurship is being taught in all regions of Brazil as teaching plans from all regions were found. Entrepreneurship is spread over several university courses as the teaching plans found refer to 56 different courses in the fields of applied social sciences, humanities, exact and earth sciences, life sciences and engineering.

Lectures are among the main teaching methodologies used, being mentioned in 98% of the teaching plans analyzed. However, active methodologies are widely used, following the recommendations by several authors as 21 of the 31 methodologies identified in the plans are active ones. There is wide dispersion of the bibliographies used, and more than 400 references were mentioned. The main authors cited are Dornellas (2005), Dolabela (2008) and Drucker (2003) that, together, appeared in 71 of the 113 teaching plans analyzed.

Contents of the teaching plans were categorized in six major categories: declarative knowledge of basic concepts; declarative knowledge of entrepreneurship theories; factual and

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contextual knowledge; entrepreneurial skills and profile; knowledge and skills on enterprise creation; knowledge and skills on enterprise management. About 75% of the contents refer to declarative knowledge of basic concepts and the skills of enterprise creation and management.

It was found that 50% of the teaching plans address business modeling-content, and only 18% of these mention the use of business model canvas. In addition, contents such as prototyping, minimum viable product, design thinking and pitch are mentioned in less than 20% of the teaching plans analyzed.

It was also noted that teaching contents and methodologies in the teaching plans are mostly described in a superficial and generic way, making it difficult for students to understand what will be taught and to analyze the contents based on learning taxonomies. Based on that, it is recommended that teaching plans be designed in line with the educational theories, enhancing their quality.

The article contributes to the advancement of the entrepreneurship education theory as it discusses entrepreneurship education in light of educational theories and the use of learning taxonomies. It identifies the main contents, resources, methodologies, evaluation methods and bibliographies used in undergraduate entrepreneurship courses in Brazil. Moreover, it is the very first article that analyzes this number of teaching plans in Brazil with these categories of analysis.

In practical terms, the article contributes to improve the entrepreneurship courses offered. It encourages the use of a common bibliography, so that entrepreneurship is not confused with disciplines like administration and marketing. It helps educators to elaborate better teaching plans, in light of educational theories, what could make students more interested in taking the course and would make evaluation easier as learning objectives would be written in a student-centered way. If one knows what the student was supposed to learn, it is easier to evaluate whether the learning goals have been achieved.

The paper evidences that entrepreneurship courses do not always address the challenges that entrepreneurs face in real life and that contents that stimulate entrepreneurial practice should be more approached in courses. For policymakers and educators, the paper evidences that entrepreneurship should be legitimized as an independent field, otherwise the courses may not achieve their goal to help students develop entrepreneurial competences and actually create new business. There is a need to train entrepreneurship professors to address entrepreneurship in a more practical approach. Also, entrepreneurship education could be improved through the exchange of experience between educators in conferences conceived with that purpose. This would contribute to the dissemination of good practices and more standardized entrepreneurship education.

It should be noted that what is stated in teaching plans is not always what happens in classrooms. Bibliography may be outdated due to university's lack of resources to acquire new books, for example. Despite that, educators could update the bibliography using scientific articles published in top journals, but no teaching plan indicated the use of articles. This may be an indication that the production done in graduate school is not studied in undergraduate school. Efforts could be made to approximate undergraduate students to the scientific production on entrepreneurship.

As limitations to this article, it is noteworthy that the sample was not randomly selected and may be not representative of all entrepreneurship courses in Brazil. Teaching plans are likely to be presented only to meet the bureaucratic requirements of the institution, being not updated by teachers. In any way, these are important indicators for the design of an overview on entrepreneurship education in Brazil, as intended by this article. As research agenda, it is suggested that data be paired, identifying which methodologies are used to each content and which evaluations of the course learning effects are performed, comparing which ones produce the best results. We encourage other researchers to use the same taxonomy proposed

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in this paper to analyze entrepreneurship undergraduate courses in other countries, so results can be paired and compared to the ones found in Brazil.

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