XXI SEMEAD
Seminários em Administração
novembro de 2018
ISSN 2177-3866

ENTREPRENEURSHIP COURSE: MAPPING THE FUNDAMENTAL IDEAS

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1 INTRODUCTION

It has been seventy years since the first entrepreneurship course began in the United States, at Harvard Business School in 1947. In the ensuing seven decades, not only in the United States, but also in several other countries, the number of courses related to Entrepreneurship, at the graduate and post-graduate level, has grown, in addition to informal courses. With this awakening, academic interest in the subject has also grown, addressing different aspects in the field of research (Katz, 2003; Lima et al., 2014).

In Brazil, the Getúlio Vargas Foundation was a pioneer in instituting entrepreneurship as an academic subject by creating the New Business course in 1981. Soon afterwards, in 1984, the Faculty of Economics, Management and Accountancy at the University of São Paulo (USP) began to offer a course in entrepreneurship in its graduation program in management, and founded the Business Creators Club, which met to welcome and back potential entrepreneurs, attracting risk capital investors, professors and support agencies.

Despite the proliferation of courses and programs in Brazil and around the world and the academic works that seek to understand the phenomenon of entrepreneurship, an empirical consensus has yet to be reached regarding how to teach it (Hannon 2006; Katz et al. 2016; Neck and Greene, 2011; Vanevenhoven, 2013). This is because the results presented so far have been inconclusive, especially regarding the content of courses and methodologies. This difficulty stems from the complexity involved in defining the theme as a whole and the focus on opening small businesses or on instrumental learning (Corbett, 2005; Honig, 2004; Neck and Greene, 2011).

Katz et al. (2016) attempted to arrive at a specific curriculum for entrepreneurship by researching two established patterns: the American, through the Consortium for Entrepreneurship Education, and the European, through the European Commission. They concluded their work by commenting that it was the first step towards promoting an academic discussion on entrepreneurship education and inviting other researchers to continue the discussion. Therefore, the present study seeks to fill this contemporary gap.

Thus, continuing the discussion proposed by Katz et al. (2016), the curricula of sixty courses, part of the corpus of this study, were researched. They were found to be in diverse fields of knowledge, and there was no uniformity regarding the content of these courses; nor was there any unanimity concerning what is fundamental for learning and developing skills that could be of aid to the student in the future. Furthermore, the fragmentation of courses, and a mixture of the essential and what might be considered merely supplementary, is a reality in every field.

One way of structuring a course on what is essential or indispensable is through its fundamental ideas. Basic and general ideas enable continuous acquisition of in-depth and specific knowledge that will allow students to fly higher in the future, learning not a skill but general ideas that serve as a basis for applying learning to other situations and solving new problems that may arise in the student's personal or professional life (Bruner, 1960).

Given the aforementioned gap and the need to establish fundamental ideas in entrepreneurship education to advance the theory and aid teachers, the present study seeks to determine what should be taught in an entrepreneurship course in order to map the fundamental ideas.

2 THEORETICAL FOUNDATIONS

To achieve the goals of this study, it is important to define entrepreneurship to prepare a conceptual framework, in map format, and discuss fundamental ideas in search of procedures to aid the study.

About entrepreneurship (see section 2.1), several renowned scholars over time have adopted different approaches, including Cantillon, Say, Marshall, Weber, Schumpeter, McClelland, Kirzner, Drucker and Pinchot III. The focus of the bibliographic research for this study will be on Schumpeter, McClelland and Drucker, as these authors represent the traditional theoretical perspective of entrepreneurship, as well as authors that discuss more recent approaches, such as Pinchot (1985), Filion (1999), Neck and Greene (2011) and Shane and Venkataraman (2000).

Fundamental ideas (see section 2.2) were understood from the epistemology proposed by Bruner (1960) and were analysed from the characteristics discussed in the studies of Machado (2014) and Schweiger (2006).

The map shows us what is fundamental as an instrument of representation. In this study (see section 2.3) was used a symbolic cartography proposed by Machado (2010) from the Monmonier (1991; 1993) previous research.

2.1 Characterization of Entrepreneurship

Entrepreneurship is not a new term. It can be found in works that data back to the nineteenth century, such as those of Cantillon and Say, who addressed it from an economic perspective. Since then, there have been many shifts in the definition and use of the term, however, the economic perspective was maintained until the early twentieth century, when the work of Schumpeter was published. After that, other focuses have dominated the theoretical framework of the topic, including behavioural, sociological, business or managerial perspectives. More recently, researchers have striven to understand entrepreneurship education.

The theory of economic development is the seminal work of Schumpeter in the field, and it is considered the foundation of entrepreneurship from an economic viewpoint (Becker et al., 2012). The work can be read in full in the book entitled *The Theory of Economic Development*, first published in 1911, and revised and translated into English in 1934. Although it has been subjected to criticism from some quarters (Goss, 2005; Witt, 2002), it is a highly esteemed work, addressing economic theory in its multidisciplinary nature. The contribution of this theory to studies on entrepreneurship cannot be ignored, as it considers innovation as a driver of economic development with the introduction of new products into the market or even new forms of production. Baumol (2015) considers Schumpeter's innovation the instrument of competition in industry and one of the points that makes it stand out in the theory on entrepreneurship.

To Schumpeter (2008) entrepreneurship is the carrying out of new combinations and entrepreneurs are responsible for renewing the economic flow through what he calls creative destruction. In this concept, there is a difference between enterprise and business, and businessman and entrepreneur, terms that are often used synonymously. To McDaniel (2000:279) "not all managers or owners of business are entrepreneurs because one can run a business without trying new ways of 'doing' business".

It is important to stress that Schumpeter separates the entrepreneur from those that discover new combinations, because to be considered as such means putting into practice, making things happen in spite of resistance. In his work, there is a distinction between innovation and invention, although innovation is treated only descriptively (McDaniel, 2000),

namely, the creation of a new productive function (Schumpeter, 2008), covering five possibilities: new good, new method, new market, new source of supply and new organization of any industry.

This issue is also highlighted in the work of Shane and Venkataraman (2000), who discuss the legitimacy of the field of research. They point out that the relationship that came to exist between entrepreneurship and small businesses makes it difficult to determine a particular conceptual framework, given the understanding that small businesses are already part of the managerial field of study. According to these authors, although this theoretical framework appears to be "useful to strategic management, it is not sufficient for entrepreneurship" (Shane and Venkataraman, 2000:217).

The relationship between innovation and entrepreneurship, which was first highlighted in the Schumpeterian view, was taken up in works that sought to consolidate theories for entrepreneurship, combining the search for opportunities with this theme (Shane and Venkataraman, 2000:219). They argued that it makes more sense to study the topic thinking of a conceptual framework focusing on understanding opportunities in their various nuances, because "entrepreneurship does not require, but can include, the creation of new organization".

The behaviourist theoretical perspective stems from the studies of McClelland with the publication of *The Achieving Society*, which strives to understand the psychological factors involved in economic growth and their relationship with entrepreneurship. To this Harvard professor, the success of an entrepreneur is not only linked to what he knows about finance, markets and production, but also to what he calls the need for achievement, the basis of his behavioural studies of entrepreneurs. To this researcher, the need for achievement drives an individual to seek challenges. His rewards are not only financial, but also personal. One of his contributions lies in identifying that entrepreneurs feel a great need to achieve and have little interest in routine activities.

In his book, McClelland (1961) presents the theory on human needs about motivation and discusses three possibilities: need for achievement, need for affiliation and need for power. In the first case, people want to do something for themselves. They like to take calculated risks and set challenging goals. In the second case, individuals are motivated by the need to form personal relationships and ties of friendship. In the third case, they are motivated by power and the need to control people to help them achieve their goals. People motivated for achievement are the ones that are likely to become entrepreneurs.

In 1965, McClelland published an article specifically addressing entrepreneurship, presenting a longitudinal empirical study conducted with the aid of former students at Wesleyan University, in Connecticut. To McClelland (1965), the need for achievement spurs an individual to seek positions that enable him to act as an entrepreneur, which normally brings him greater satisfaction. This was tested in his field research and the author concluded that the need for achievement is a personality trait that drives men – Only male students were involved in the study. The author offered no explanation for this – to seek entrepreneurial work or act in an entrepreneurial manner in traditional jobs.

With Peter Drucker, studies on entrepreneurship shifted towards business management. In his 1985 book, *Innovation and Entrepreneurship*, Drucker relates entrepreneurs with risk. In fact, entrepreneurs would be people who take calculated risks, knowing that taking risks and innovating is dangerous, but that not innovating is even more dangerous. To this author, successful entrepreneurs seek opportunities. What he found in common among the entrepreneurs he studied was the systematic practice of innovation (Drucker, 2015).

Innovation and creativity are common themes in the writings of Drucker and are considered the main characteristics of an entrepreneur, to the extent that Drucker (2015) sees entrepreneurs as people who innovate and are defined by certain behavioural traits, namely that

they are always seeking opportunities, desire change and have a capacity for innovation and leadership.

When analysing the theoretical perspectives discussed above, one perceives that the field involves knowledge of several subjects. Filion (1999) noted that entrepreneurship was a blend of human sciences, as the subject attracts a wide range of specialists. Therefore, one of the difficulties is how to teach such a wide scope of content in any university and at any level of learning.

From his work, different views can be derived, according to the field of knowledge: (i) Economics: entrepreneurs are associated with innovation; (ii) Behaviourism: characteristics such as creativity, persistence, internality and leadership are attributed to entrepreneurs; (iii) Managerial specialization: entrepreneurs are competent organizers and visionaries; (iv) Financial specialization: entrepreneurs are capable of calculating and measuring risks; and (v) Marketing: entrepreneurs are people who identify opportunities.

The views presented by Filion (1999) draw close to an attempt to select characteristics of entrepreneurs, but appear to come up against the problem of the concept, given the diversity that exists between the different fields that make use of the term. Regarding the characteristics, it is worth mentioning the book by Robert Reich, *The Work of Nations*. Among other issues, Reich (1992) discusses the three jobs of the future, one of which is the symbolic analyst, and discusses aspects regarding the education of an entrepreneur. A symbolic analyst is an individual who identifies and solves problems, uses symbols to represent reality and has an innovative spirit. As his mind is trained to be sceptical, curious and creative, his formal education "entails refining four basic skills: abstraction, system thinking, experimentation and collaboration" (Reich, 1992:214).

It is pertinent at this point to comment specifically on the distinction made in Reich's book between routine producers and symbolic analysts. Although the statement corroborates the ideas of McClelland, who believes that an entrepreneur does not like routine activities, it is believed that, in practice, when entrepreneurs are in an organizational context, they perform repetitive tasks. Despite the apparent contradiction, Reich (1992) claims that these people are paid for the time they spend at work rather than the results they produce. The fundamental point is having space for creation alongside the necessary routines in all activities.

The fundamental point in Reich's work regarding the present study is the understanding that what is valuable is the ability to use knowledge creatively, which takes us back to how the symbolic analyst exploits knowledge. He understands that formal education is the opposite of learning and ends up holding back the student's capacity for abstraction, as meanings are imposed rather than constructed. The author believes that students need to learn to examine reality from different lights and to visualize new possibilities and choices (Reich, 1992).

The need to develop system thinking in the symbolic analyst means that understanding phenomena in isolation is not an efficient learning system but rather, as occurs in most courses, merely the transmission of information. To discover opportunities, which is an essential attitude of an entrepreneur, an individual must can perceive an entirety and when there is a juxtaposition of the elements of reality. Therefore, it is better to teach a student to analyse why a problem exists and its connection with other facts than to show him how to solve it. Another interesting discussion in Reich's (1992) book is teamwork and group learning. Although the book was published over twenty years ago, these issues remain topical when it comes to teaching and learning.

More recent approaches focus on corporate entrepreneurship or intrapreneurship and entrepreneurial thinking, understood as a cognitivist approach to entrepreneurship. Although the term *intrapreneur* was mentioned by Gifford Pinchot (1985), studies on the topic have come into the spotlight more recently, and the concept is now more diffuse and valued in contemporary organizations. This approach broadens the scope of entrepreneurship to within

large organizations and provides responses to the old discussion on the exclusive relationship between entrepreneurship and small businesses, consolidating the relationship between entrepreneurship and innovation.

To Pinchot and Pellman (1999), an intrapreneur, characterized as one who dreams and achieves, glimpses opportunities and puts them into practice, is one of the five roles necessary for innovation to occur in an organization. The others are sponsors, team, creativity and environment. For Pinchot (2011) the key words for Intrapreneurs are dream, projects, team, goals and reality.

The work that highlights the cognitivist approach to entrepreneurship is that of Neck and Greene (2011), which focuses on teaching the subject. These authors claim that teaching entrepreneurship is developing the discovery, entrepreneurial reasoning and skills to make an idea a reality, preparing people who can identify the right opportunity at the right time and for the right reason. The authors demystify the entrepreneur as someone with the characteristics of a superhero and discuss the notion of success related only to economic results. To illustrate this idea, Brazilian authors, such as Salusse and Andreassi (2013) and Lima et al. (2014) have sought to understand the entrepreneurial way of thinking and ways to advance the understanding of entrepreneurship education in keeping with the study of Neck and Greene (2011) discussed above.

This section sought to present a synthesis through the theoretical perspectives included in the present study in order to present the theoretical framework (Table 1) used as a background to map fundamental ideas of entrepreneurship education.

Table 1 Theoretical framework with expressions or words highlighted in the approaches of the authors included in the study

Highlighted expressions/words	**Drucker**	**Filion**	**McClelland**	**Neck and Greene**	**Pinchot and Pellman**	**Reich**	**Shane and Venka-taraman**	**Schumpeter**
Group learning						✓		
Capacity for abstraction						✓		
Collaboration						✓		
Control			✓					
Creativity		✓			✓	✓		
Curiosity					✓	✓		
Challenges			✓					
Discovery				✓				
Team					✓	✓		
Innovative spirit						✓		
Experimentation						✓		
Innovation	✓	✓			✓		✓	✓
Intuition					✓			
Leadership	✓	✓						
Goals					✓			
Change	✓							✓
New								✓
Opportunity	✓	✓		✓	✓	✓	✓	
Persistence		✓						
Project				✓	✓			
System thinking						✓		
Entrepreneurial reasoning				✓				
Achievement			✓					

Personal relationships			✓					
Risk	✓	✓	✓					
Dream					✓			
Visionary		✓						

2.2 Fundamental ideas

One of the results of the Woods Hole Conference of September 1959 in the United States was Jerome Seymour Bruner's book, entitled *The Process of Education*, published in 1960. This work introduced some issues that remain topical in the context of entrepreneurship education related to what should be taught and when and how, highlighting the planning of the curriculum and the fundamental ideas of the course in question (Bruner, 1960).

Fundamental ideas are understood by Heitele (1975:188), from the epistemology proposed by Bruner (1960), as ideas that "provide the individual at each level of his development with explanatory models which are as efficient as possible and which differ on the various cognitive levels, not in a structural way but only by their linguistic form and their levels of elaboration".

Fundamental ideas are believed to promote the identity and guide the teaching of a course (Rezat et al., 2014). Therefore, they are related to the course curriculum, favouring the connection between the themes discussed in formal education and the consequent development of competences that will favour the future actions of students. To Heitele (1975), fundamental ideas are worked on throughout a curriculum in a spiral (proposed by Bruner in 1960).

Heitele (1975:63) views them as "bridges" between a subject and its teaching, an axis that structures knowledge acquired at various times in an individual's formal education. Rezat et al. (2014) complement this thinking by commenting that fundamental ideas connect the course content to the skills required by the work market, which is an essential consideration for entrepreneurship.

According to Machado (2014), they have three essential characteristics: (i) Ordinary language: fundamental ideas can be explained with everyday language without having to resort solely to technicalities; (ii) Articulation: fundamental ideas have a type of 'internal interdisciplinarity', i.e., they are present in multiple themes of courses and can be interconnected; and (iii) Overflow: fundamental ideas are found in various courses, i.e., they are not restricted to a single field of knowledge, but stretch beyond the limits of one subject to take root in others.

To the characteristics listed by Machado (2014), the four dimensions presented in the study of Schweiger (2006) can be added, to characterize and identify the fundamental ideas of the 'mathematics' course: (i) Time dimension: ideas recur in the historical development; (ii) Horizontal dimension: ideas recur in different areas of the course; (iii) Vertical dimension: ideas recur at different levels; and (iv) Human dimension: ideas are anchored in everyday activities.

It is understood that the horizontal dimension proposed by Schweiger (2006) refers to the interdisciplinarity considered by Machado (2014) as one of the essential characteristics of fundamental ideas. To classify fundamental ideas in the present study, the other three dimensions will be used. The results of these analyses can be seen in Table 6, chapter 4.

2.3 Maps and symbolic cartography

From mapping comes the need to establish fundamental ideas, which work as scales, showing what one wishes to represent, and consequently the relationship between map and

narrative. “Every map tells a story” (Machado, 2010:200), in our case, a story of what is fundamental in the teaching of entrepreneurship, irrespective of the level or area of knowledge.

The map itself shows us what is fundamental and the main points, graphically representing part of a whole. Like a map of the world, the whole can be shown, but in this case, it loses what is fundamental to each part. Although it is an ancient representation technique, since maps existed even before written and numerical language, the topic has evolved and today encompasses other perspectives, such as mental, conceptual, learning, knowledge and even strategic maps.

However, in the present study, maps are understood in the cartographic sense, showing the importance of the phenomena that they are intended to represent, as defined by Machado (2010). He understands the idea of maps in a broad rather than a narrow sense. In other words, “mapping knowledge spaces or the symbolic representations that are significant to human beings” (Machado, 2010:186). To Shum and Okada (2008:251), maps “are systematic ways to simplify the world in order to help focus attention on specific phenomena”. Balaid et al. (2016) believe that maps are used in the everyday situations of people and companies, but not systematically or in a documented form.

Machado (2010:188) argues that a map “is not the same as the territory it represents, but translates essential relationships that guarantee some type of significant reference to the space that is represented”. In other words, a map is a representation of the observable totality. As it is an instrument of representation, some elements are fundamental to ensure that they are true and, thus, reliable. Based on the elements proposed by Monmonier (1991; 1993) for geographical cartography, Machado (2010:189) selected the elements for symbolic cartography that are essential to understand mapping in this study:

- Every map is presence and absence: a map does not contain everything, i.e., it does not represent every possible object and relationship.
- Every map translates a coherent forgetting: maps have scales and in symbolic cartography, it is the scale that “delimits what can be perceived and represented and what cannot” (Machado, 2010:192).
- Every map expresses a viewpoint: maps depend on the projection system, and in symbolic cartography, they depend on a viewpoint that is related to a purpose or project.
- Every map is a map of relevance: in geographical cartography, maps distort reality. This characteristic, in symbolic cartography, is represented by the weights and values for the represented elements, given the relevance of each within the project that is meant to be presented.
- Every map assumes a context in which it is rooted, as it represents a small portion of something larger. In symbolic cartography, maps are rooted in the broader space of previous knowledge.

Monmonier (1993) discusses the need to have a map that is significant to the reader, believing that the less frequent use of categories reduces the risk of presenting a confusing, unreal or aesthetically complicated work. To Machado (2010:192), “if we get too close, we see the details, but we lose our view of the whole; if we move too far away, a broader view sacrifices knowledge of certain elements.”

The work of Machado (2010), which addresses symbolic cartography, shows that maps of relevance are essential to understand a world where knowledge is formed from nets, whose nodes are centres of interest that take the reader to the level of magnitude he desires. There are no limits. The individual – reader, student, researcher or any other profile – finds in knowledge nets all that he desires and much more that is relevant or irrelevant. As it is a liquid world without limits and with excessive information, knowledge mapping becomes essential for the evolving construction of knowledge in specific fields.

3 METHODOLOGICAL PROCEDURES

In keeping with its goals, the study is exploratory and qualitative in nature. This is consistent with studies in the field of the human sciences, which aim to study man and his relationship with the world, enabling greater dialogue between empirical data and theoretical sources. The method employed was documental investigation and a subsequent comparative analysis of data. An essential characteristic of documental investigation is the analysis of existing data (Walliman, 2011) such as course teaching plans or the syllabuses. The stages of the documental research were:

1. *Selecting the universities*: to select the institutions for inclusion in the study, the rankings of Brazilian universities were consulted (RUF, 2015) and the top five universities were chosen: University de São Paulo (USP), Federal University of Rio de Janeiro (UFRJ), Federal University of Minas Gerais (UFMG), Campinas State University (UNICAMP) and the Federal University of Rio Grande do Sul (UFRGS).
2. *Identifying the entrepreneurship courses*: at each institution, a survey was conducted to identify entrepreneurship in all the courses, including graduation and post-graduation. The key words in this survey were entrepreneurship, small businesses, business plan, creativity and innovation. Seventy-seven courses were found (Table 2).
3. *Searching the course syllabuses*: not all the courses found had a plan available to the public. An extensive search was conducted, even on the blogs of professors and students, and 60 syllabuses were found (Table 2). These syllabuses were then included in the research corpus for joint analysis.
4. *Search for the keywords*: a content analysis (Bardin, 1993) of the syllabuses was conducted by analysing the occurrence of words through frequency analysis, to be used as the framework for the theory presented in Section 2 (see Table 1). A qualitative data analysis software was used to the co-occurrence of words and a frequency table (Table 3) was presented.

Table 2 Results obtained by surveying the entrepreneurship courses

University	Access to Data	Total courses found (*)	Total syllabuses found
USP	Total, complete access to the system.	35	35
UFRJ	Easy, as the SIGA system is open to the public for consultation.	15	14
UFMG	Difficult. No success in accessing the system, and an existing INOVA (**) list was used, and the Google search engine to search for the syllabuses.	21	07
UNICAMP	Reasonable. There is an innovation and entrepreneurship sector.	03	03
UFRGS	Poor, little accessibility to the course curricula. The courses found were listed on a specific website for entrepreneurship and innovation.	03	01
Total		77	60

(*): Graduation + post-graduation
(**): UFMG incubator

A comparative analysis was then conducted to determine some of the possible fundamental ideas of entrepreneurship by comparing the theoretical framework (Table 1) with the results of the content analysis of the sixty syllabuses under study (Table 3). A comparative analysis is adequate for cases where the phenomena cannot be reduced to the experimental level, a common situation in certain sciences, or if you have a small number of cases (Lijphart, 1971). Although the possibility of working with a small N, it is necessary to verify the possibility of generalization so that the comparative analysis is not merely a collection of cases and information.

Following the comparative analysis, a list was obtained with words or concepts (Table 4) that were analysed considering the characteristics of the fundamental ideas (Table 5) proposed by Machado (2014) and Schweiger (2006). After this analysis, a content map was prepared (Figure 1) and represented in a fishing net form (Figure 2).

4 RESULTS

The USP was founded as a university in 1934, although its Faculty of Law has been active since 1827. It is a public university, maintained by the government of São Paulo State. It is prestigious and recognized worldwide. It has a campus in seven cities in São Paulo State, and in 2015, it had over 59,000 undergraduate students and 30,000 involved in post-graduate studies.

The UFRJ is considered the first higher learning institution in Brazil, as it has been operational since 1792, when it was known as the Royal Academy of Artillery, Fortification and Design, which was later to become the Polytechnic School of the UFRJ. It was also the first to be constituted as a federal university, in 1920. With three campuses and several educational poles, it is one of the main universities in Brazil and recognized worldwide. Data from 2013 show that it caters to over 48,000 undergraduates and 5,000 post-graduate students.

The UFMG was founded in 1927 as a private institution, becoming a public one in 1949. It has four campuses and several units, spaces for science and technology and museums. It is considered an important Brazilian university, with almost 49,000 undergraduate and post-graduate students, 75 undergraduate courses and almost 900 research groups.

Founded in 1966, UNICAMP is considered a young institution, but it has earned a strong reputation due to its research. With three campuses, in 2014 it had over 18,000 undergraduates and almost 16,000 students enrolled in post-graduate programs. The university has close ties links with the productive sector. It has attracted to its vicinity a high-technology pole of industries, some created through the initiatives of students and professors.

The first schools that later became what we know today as the UFRGS opened in 1895. In 1934, it was called Porto Alegre University. Data from 2014 show that it has 27 teaching units, with 13 institutes, 10 faculties and 4 schools. With 900 research groups, almost 3,000 professors and over 30,000 undergraduates, the university has several social and cultural projects, as well as a planetarium and a museum that focuses on studying and preserving the history of Porto Alegre.

In addition to searching for entrepreneurship courses, it was observed that other activities relating to entrepreneurship education were conducted by the universities. It should be mentioned that 27 entrepreneurship research groups were identified. Furthermore, various other activities were found that were involved in diffusing knowledge concerning entrepreneurship, such as incubators, accelerators, nuclei and leagues, the latter being student initiatives. There were also science parks in the vicinities of the universities.

Of the 60 courses analysed, the highest concentrations of entrepreneurship were in engineering and management, followed by management. However, it is interesting to note its appearance in other fields, such as medicine, art, music and design/architecture.

The co-occurrence of words analysis based on the syllabus identified the key words or expressions found in the course plans at the institutions (Table 3). Following the recommendations of Bardin (1993), a core of meanings was defined, clustered in this study to facilitate understanding, and words were determined that may be representative of fundamental ideas.

Table 3 Frequency obtained from an analysis of the occurrence of words/expressions.

WORDS or GROUPS	UFMG	UFRJ	UNICAMP	UFRGS	USP	Total
Opportunity	5	4	0	0	14	23
Profile (behaviour, attitude, competence, skill, vision, spirit)	2	7	0	2	11	22
Business Plan	3	3	2	0	12	20
Innovation	1	5	1	1	12	20
Strategy (strategic planning + strategic plan)	1	4	0	0	12	17
Management (SWOT, SMART)	1	4	0	1	9	15
Entrepreneurship	1	3	2	0	8	14
Technology	0	3	3	0	6	12
Development (incentive, financing, incubator)	0	5	0	0	6	11
Project	2	1	0	0	7	10
Company (business)	1	1	1	0	7	10
Creativity	3	2	0	0	4	9
Intellectual property and patents	4	1	1	0	3	9
New Businesses (opening of companies, new ventures)	1	2	0	1	5	9
Risk	0	1	0	0	7	8
Idea (new invention)	2	2	1	0	3	8
Sustainability	0	1	2	0	4	7
Team/Collaboration	1	0	0	0	6	7
Legal aspects	1	4	0	1	1	7
Business Model	0	1	1	0	4	6
Start-ups	1	0	1	0	4	6
Market (marketing, consumer, product)	0	2	1	0	3	6
Social business (or social entrepreneurship)	0	0	1	0	5	6
Competitiveness	1	4	0	0	1	6
SMEs	1	3	0	0	2	6
Financing	3	0	0	0	0	3
Internal entrepreneur (corporate entrepreneur + intrapreneur)	1	0	0	0	2	3
Challenges	1	0	0	0	2	3
Feasibility	0	0	1	0	2	3
Systemic thinking	1	0	0	0	2	3
Spinoffs	1	0	0	0	1	2

Social responsibility	0	1	0	0	1	2
Ethics	0	0	0	0	2	2

Table 3 shows that some words or expressions occur frequently at the universities: opportunity (23 times), profile (22 times), business plan (20 times) and innovation (20 times). Others, like entrepreneurship, leap off the page, as it is inappropriate to mention them as part of the course content. It would be like saying that in a mathematics course, mathematics is taught. This is also the case with company and development.

A comparative analysis was then conducted between the concepts outlined in the theory (Table 1) and practice and the courses (Table 3). This analysis resulted in a list of words or expressions (Table 4) that either appeared over 11 times in the course syllabuses (considering that this was the average number of times that the words occurred) or were repeated at the theoretical level. These words or expressions are creativity, entrepreneurship, team/collaboration, strategy, development, management, idea/new, innovation, opportunity, profile/behaviour, business plan, project, risk, technology and system thinking.

Table 4 Results obtained from comparative analysis

Words that appeared 11 times or more in the syllabuses	**Words that appeared in the theory and the syllabuses**
Entrepreneurship	Creativity
Strategy	Team/Collaboration
Development	Idea/New
Management	Innovation
Innovation	Opportunity
Opportunity	Project
Profile/Behaviour	System Thinking
Business plan	Risk
Technology	

These words or expressions were analysed (Table 5) from the characteristics of fundamental ideas discussed in the studies of Machado (2014) and Schweiger (2006), shown in Section 2, bearing in mind that to Machado (2014) fundamental ideas can be explained in ordinary language and must be articulated and go beyond the boundaries of the course. Meanwhile, to Schweiger (2006), they should meet the specifications of four dimensions: time, vertical, horizontal and human, with the horizontal and interdisciplinary dimension being conceptually similar and thus not repeated in the analysis.

Table 5 Analysis of words/expressions from the theory on fundamental ideas

	Schweiger (2006)			**Machado (2014)**		
Term	**Time**	**Vertical**	**Human**	**Ordinary**	**Articulation**	**Overflow**
Creativity	yes	yes	yes	yes	yes	yes
Collaboration	yes	yes	yes	yes	yes	yes
Behaviour	yes	yes	yes	yes	yes	yes
Entrepreneurship	yes	yes	yes	no	no	yes
Team	yes	yes	yes	yes	yes	yes
Strategy	yes	no	yes	no	no	yes
Development	no	yes	no	no	yes	yes
Management	yes	yes	yes	yes	yes	yes
Idea	yes	yes	yes	yes	yes	yes
Innovation	yes	yes	yes	yes	yes	yes
New	yes	yes	no	no	no	no

Opportunity	yes	yes	yes	yes	yes	yes
Profile	yes	yes	yes	yes	yes	yes
Business plan	no	yes	no	no	yes	yes
Project	yes	yes	yes	yes	yes	yes
Risk	yes	yes	yes	yes	yes	yes
Technology	no	yes	yes	no	yes	yes
System Thinking	yes	yes	yes	yes	yes	yes

4.1 Map of fundamental ideas of the entrepreneurship course

Based on the comparative analysis between the theory and the secondary data obtained from the document research, a map was prepared with some of the fundamental ideas pertinent to the entrepreneurship course to achieve the goal of the present study. This mapping was synthesized into a figure (Figure 1) to facilitate the use of the results obtained from the research by teachers wishing to plan the content of this type of course.

It should be highlighted that in the maps, as discussed in Section 2, when focusing on a certain space, one does not have a notion of the whole. By allowing a notion of a whole, which is always partial given the wide context that is always present, focus is lost. Therefore, Figure 1 focuses on some of the fundamental ideas discussed in the present study, but does not exclude the possibility of the existence of others, and seeks to include the instrumental learning that is common in the syllabuses of entrepreneurship courses in different fields of knowledge.

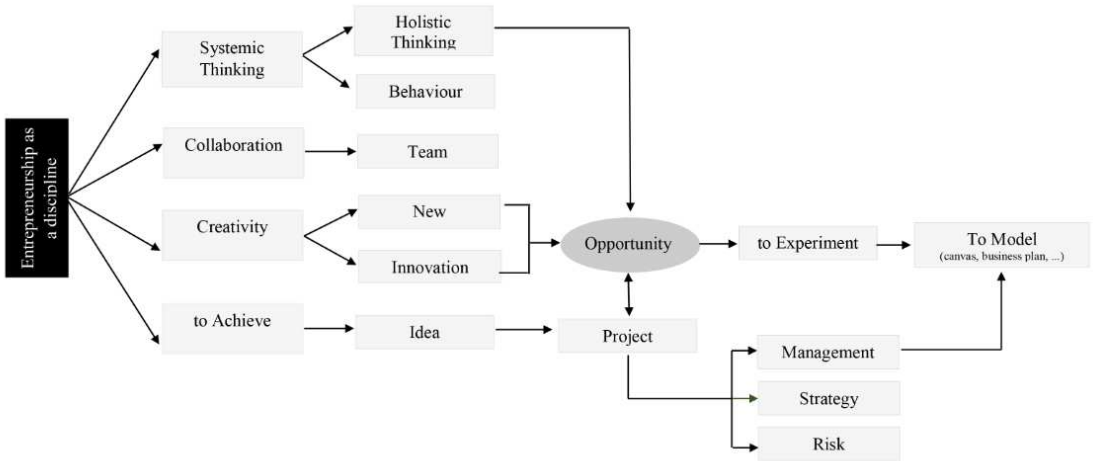

Figure 1 Map of the entrepreneurship course based on fundamental ideas

When focusing on the entrepreneurship course and noting that it is included in an ecosystem with so many other possibilities, the metaphor of a fishing net (Machado, 2010) for the construction of knowledge, is considered adequate in this context, seeking to present the fundamental ideas with this understanding plus aspects from a symbolic map. Figure 2 graphically represents the fundamental ideas of a map of relevance, presented in a knowledge net that, by itself, enables other constructions.

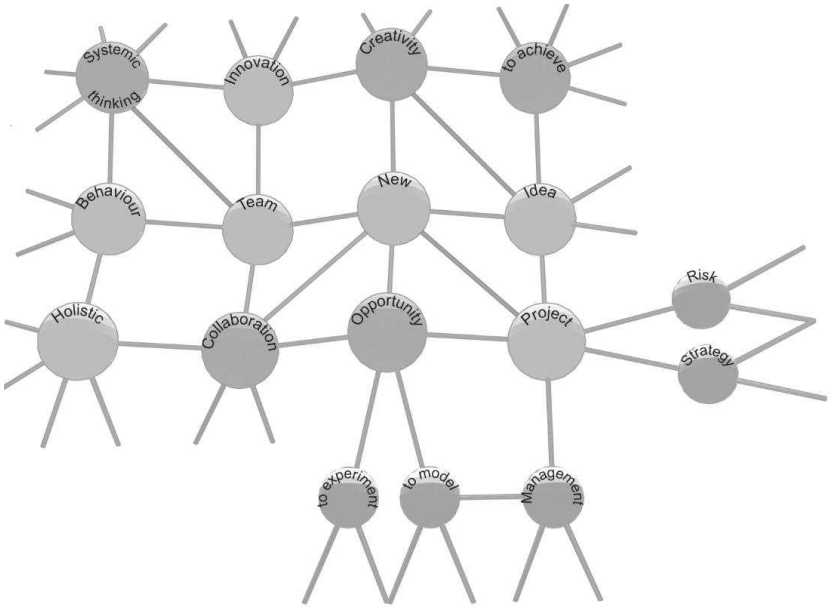

Figure 2 Fundamental ideas of the entrepreneurship course presented in a net form

6 FINAL CONSIDERATIONS

The present study sought a better understanding of entrepreneurship education by mapping some of its fundamental ideas. It was perceived that characterizing entrepreneurship is no easy task, given the heterogeneity in the very concept of the phenomenon. This makes defining course content a complex task that requires further study. We will continue to see and approve of entrepreneurship as a synonym of the process of opening a new business. However, it is plausible that the ability to idealize and achieve is the most prominent characteristic. Idealizing in the sense of planning and perceiving ideal solutions. Achieving in the sense of making things happen.

Understanding the need to establish the fundamental ideas of entrepreneurship education, despite being a gap in the theory, was consolidated with an analysis of the course syllabuses and the perception that entrepreneurship education, which is increasingly prominent in schools in Brazil, has different nuances due to being part of different fields of knowledge. However, it does not have a central axis to guide the establishment of a basic curriculum, irrespective of the university where it is taught. Teachers wish to teach entrepreneurship to future professors, doctors, engineers, veterinarians and managers. However, what should they teach? In this study, we sought to begin an academic discussion on this central axis of entrepreneurship education that would be traced from the fundamental ideas chosen from the theory and in practice.

Fundamental ideas attempt to enable an understanding of a single axis regarding the definition of entrepreneurship and, consequently, the possibility of establishing a basic curriculum for teachers to guide the planning of their courses. This does not mean arguing that entrepreneurship education should be the same in all fields of knowledge, as each field has its own particular features. It means establishing what is fundamental to ensure that some of the essential characteristics of the subject are preserved. The very foundations of a course guarantee that there is creativity and space for new possibilities according to the specialty of each group of students and the understanding that knowledge is acquired in a net form.

The study contributes to the field with a step towards understanding a theme in which empirical convergence is lacking to improve knowledge. It makes a practical contribution by

enabling teachers to use mapping to plan their courses, understanding that this is in a net format, allowing for inclusions, a relationship between content and continuity.

It should be emphasized that the study has some limitations. The ranking used to select the universities identified the top five as public universities, i.e., the absence of private universities in the sample may have caused a bias. The analysis was restricted to publicly announced courses, excluding those that are not available on the internet. Given the approach of the study, the analysis is restricted to the researched context, allowing future researchers to use the findings presented here as a framework for their studies in both private Brazilian institutions and universities in other countries. This will broaden the scope of analysis and increase the possibility of further discoveries.

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