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Technical education and entrepreneurship teaching: An investigation of the influences of organizational structures

Ensino técnico e ensino do empreendedorismo: Uma investigação das influências das estruturas organizacionais

Educación técnica y educación empresarial: una investigación sobre las influencias de las estructuras organizacionales

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ABSTRACT
This article sought to investigate the influences of organizational structures in technical education aimed at the development of entrepreneurial skills, highlighting three main aspects, the most appropriate teaching practices and methodologies, training and training of teachers involved in the project and administrative characteristics that encourage and promote the practice of entrepreneurship. To achieve the proposed objective, the qualitative methodology was used, seeking to deepen organizational understanding through the review of the literature pertinent to the theme. As a criterion for the selection of articles that contributed to the theoretical body, we highlight the concern in the search for recent articles, published in relevant international journals, of various nationalities, without neglecting no longer important older works. As contributions, we highlight the discussion about teaching practices aimed at the development of entrepreneurial skills, the need to offer experiences by institutions and the importance of involving society as a whole in the teaching program.
Keywords: Technical education. Entrepreneurial education. Organizational structures. Entrepreneurship.

RESUMO
O presente artigo buscou investigar as influências das estruturas organizacionais no ensino técnico voltado ao desenvolvimento de habilidades empreendedoras, destacando três principais aspectos, as práticas e metodologias de ensino mais adequadas, formação e capacitação dos professores envolvidos no projeto e características administrativas que incentivam e fomentam a prática do

empreendedorismo. Para alcançar o objetivo proposto foi utilizada a metodologia qualitativa, buscando aprofundamento da compreensão organizacional através da revisão da literatura pertinente ao tema. Como critério de seleção dos artigos que contribuíram para o corpo teórico, destaca-se a preocupação na busca de artigos recentes, publicados em periódicos internacionais relevantes, de nacionalidades diversas, sem desprezar trabalhos mais antigos notadamente importantes. Como contribuições, destaca-se a discussão quanto às práticas de ensino voltadas ao desenvolvimento de habilidades empreendedoras, a necessidade da oferta de experiências por parte das instituições e a importância de envolver a sociedade como um todo no programa de ensino.
Palavras-chave: Educação técnica. Educação empreendedora. Estruturas organizacionais. Empreendedorismo.

RESUMEN

Este artículo inquirió investigar las influencias de las estructuras organizacionales en la educación técnica dirigida al desarrollo de habilidades emprendedoras, destacando tres aspectos principales, las prácticas y metodologías docentes más adecuadas, la capacitación y formación de los docentes involucrados en el proyecto y las características administrativas que fomentan y promueven la práctica del emprendimiento. Para lograr el objetivo propuesto, se utilizó la metodología cualitativa, contemplando profundizar la comprensión organizacional a través de la revisión de la literatura pertinente al tema. Como criterio para la selección de artículos que contribuyeron al cuerpo teórico, destacamos la preocupación en la búsqueda de artículos recientes, publicados en revistas internacionales relevantes, de diversas nacionalidades, sin abandonar ya no importantes trabajos antiguos. Como aportes, destacamos la discusión sobre las prácticas docentes orientadas al desarrollo de habilidades emprendedoras, la necesidad de ofrecer experiencias por parte de las instituciones y la importancia de involucrar a la sociedad en su conjunto en el programa de enseñanza.
Palabras clave: Educación técnica. Educación empresarial. Estructuras organizacionales. Emprendimiento.

INTRODUCTION

The theme of entrepreneurial education gained greater importance in the second half of the 2011 decade, largely thanks to the restructuring of the curricular bases of basic education, proposed by the normative document Common Curricular National Base - BNCC (2018).

As of 2016, the economic reforms included in the context of changes in labor, social security and economic freedom legislation created a different environment in the labor market and encouraged the intertemporal vision for individuals and families. This means a more parsimonious behavior with the present income, since the rules for retirement and employment contracts changed the legal form that regulated the relations between workers and companies.

The intertemporal notion means creating economic conditions for survival and maintenance of an idealized standard of living in the long term, which requires better and more conscious planning regarding the use of current and future income and wealth through savings.

The first relevant reform of the 2011 decade to the theme of this work was that of 2017, followed by the social security reform in 2019. In the same year, the "Declaration of the Rights of Economic Freedom" modernized the conditions that propitiate the creation of companies.

It is in this legal and educational context that it is possible to reread the meaning of entrepreneurship as a purpose to be assimilated by society. The concept of entrepreneurship has been and has been employed over the decade to reinforce a behavior of greater purpose in relation to the organization of the economic life of individuals and families.

The proposition of formative itineraries conceived by BNCC in high school is a relevant vehicle for academic discussion, in view of the changes in the regulatory frameworks of labor, social security and economic freedom reforms mentioned above.

The training vehicle itinerary in the theme of entrepreneurship is associated with what is called entrepreneurial education. Entrepreneurial education is an important tool to motivate high school students to seek reflection on their own status as a graduate, in the midst of well-established school education in Brazil.

Associations on the theme of entrepreneurship with social problems, such as unemployment or with the broader importance of economic growth are often cited (Jabeen, Katsioloudes, & Katsioloudes, 2017; Meyer & Surujlal, 2018). With the effects of the pandemic on the demand and supply of work, reflections on the educational character for the independence of the individual were added to the debate (Sommarström, Oikkonen, & Pihkala, 2020).

These associations are established because entrepreneurial education aims to disseminate the culture of entrepreneurship and innovation in productive processes, through the transmission of skills (Karimi, Chizari, Biemans, & Mulder, 2010). It is also understood as a vehicle of mediation between culture and entrepreneurial intent (Mukhtar, Wardana, Wibowo, Narmaditya, & Cheng, 2021).

In State policy, the Ministry of Education (MEC) highlights the role of professional and technological education institutions, which aims to prepare students for the exercise of professions, contributing so that students can insert themselves and act in the world of work (Professional and Technological Education, 2018).

Although there are educational systems focused on entrepreneurship, gaps are identified in the social environment, such as: 1) Sectoral difficulties and family enterprises in becoming formalized (Tomei & Souza, 2014); 2) Lack of entrepreneurial skills to identify business opportunities, establish appropriate interpersonal relationships and strategic vision of the individual in relation to his enterprise, in the midst of competition (Rocha Júnior, 2016); 3) Need to develop entrepreneurial intention and use the worldview, built through education, to foster one's own desires and pursuits for independence (Santiago & Roxas, 2015).

As a way to contribute to the reflection on entrepreneurial education and its articulation with the itinerary, this work aims to analyze the organizational constitution necessary to the structures of high school in view of the purposes and development of young entrepreneurs.

The hypothesis of work is that the conception of entrepreneurial education and itineraries on the one hand, and social demands on the other, do not connect automatically, but must be mediated by specific organizational structures.

To achieve this goal, section 2 discusses the main aspects of entrepreneurship theory that lead to the understanding of attributes that can be enhanced through teaching. Section 2.1 presents a vision of the theme of entrepreneurial education and identifies the premises to the good practice of teaching, the teacher's profile, the student's role, with methodologies and applications. Section 3 analyzes how organizational adequacy works as an important link between theory and entrepreneurial education. This last section is subdivided into: 3.1) Teaching practice; 3.2) Physical structure; 3.3) Administrative structure, which, when all coordinated in the direction of the needs of the itinerary, ensures a better condition for the development of entrepreneurial education.

In section 4, final remarks, there are elements that contribute to the understanding and proposition of advances in the organizational theme and entrepreneurial education.

The methodology is qualitative and argumentative, because it is based on the deepening of the understanding of the organizational form that ensures the success of entrepreneurial education (Gerhardt & Silveira, 2009).

The adequacy of the selected articles to the theme started from a targeted search regarding the selection of works with the organizational focus and entrepreneurial education perspective of the itinerary in entrepreneurship, in particular in section 3.

Four criteria were used to select the papers that were revisited. The first refers to the date of the publications, which contemplated the period of 2011 and 2022 in the vast majority. The second sought to combine keywords related to: 1)"Entrepreneurial Education and Organizations"; 2) "Entrepreneurship Teaching"; 3) "Entrepreneurship" 4) "Entrepreneurial Theory" for the choice of articles. The third criterion sought to identify studies that had as method the quantitative focus, in particular, in the treatment of the results obtained through interviews and questionnaires with empirical evidence and support of the proposed arguments. Finally, the balanced selection between national and international works so that reflection could count on broader geographical experiences.

THE THEORY OF ENTREPRENEURSHIP

The field of entrepreneurship research has gained ground in the last 30 years, given the production focused on various aspects and challenges that have resulted in a core of theoretical and empirical scientific research (Kenworthy & Mcmullan, 2018) and methodological (Klein, 2008).

Kenworthy and McMullan (2018) reviewed contributions from various publications in six relevant international journals. The results showed that the contributions had a significant increase in the theoretical orientation, which indicates a greater methodological consolidation for the area of entrepreneurship, according to the authors.

The theoretical increment is not concentrated in only a small group of theories, but on subsets. Seventy-three theories announced by the authors were identified in the articles, the most common being agency theory, human capital and resource-based vision, social capital, institutional, hierarchy, among others (Kenworthy & McMullan,2018).

Another cut on the review of the authors above allowed the identification of the research fields to which each of the 73 theories tested belonged. The authors classified the 73 papers in 13 main fields, distributed as follows: about 60% belonged to the area of entrepreneurship; 10% to the area of the economy; 10% to the area of psychology; and following with lower percentages, there were records in the fields of strategic management, sociology, social psychology, administration, marketing, family businesses, communication, mathematics, biology, philosophy, finance, innovation, operational management and political science.

In the literature review by Simpeh (2011), the author had categorized four main theories on entrepreneurship: 1) Economic Theory of Entrepreneurship; 2) Psychological Theory of Entrepreneurship; 3) Opportunity-based Entrepreneurial Theory; and 4) Resource-based Entrepreneurial Theory.

The economic theory of entrepreneurship finds roots in classical, neoclassical and Austrian school theories. Smith's classical theory, based on free market, specialization and competition (1776), described the role of the entrepreneur as an entrepreneur concerned with the production, distribution and competition of the market.

From the Austrian school, Schumpeter (1934) deals with the entrepreneur as the main actor in the market, with the strength of changing the market and, consequently, the economy. Such an approach diverges from neoclassical theory, which is based on perfect competition. Schumpeter, on the other, put the entrepreneur's interpretive and inventive capabilities as the pivot of the competition.

Simpeh (2011) situates the field of study of entrepreneurship that emphasizes the analysis of the individual, entitled psychological theories of entrepreneurship. In this approach, the focus

consists of a set of characteristics that define entrepreneurship as a need for conquest, self-control, ability to accept risks and innovation, among the main aspects.

In the discussion within the psychological approach, which refers to the origin of abilities or abilities, two perspectives are presented: the first points out the qualities as traits inherent to the nature of some individuals, own and innate characteristics; the second, works with the training and development of skills and improvement of entrepreneurial behavior (Coon, 2004; Rotter, 1966; Mcclelland, 1961).

The third field presented in Simpeh's review (2011) is that of the sociological theory of entrepreneurship, which seeks to understand entrepreneurship through the social context in which the agent or decision was made. Reynolds (1992) defines four main social contexts: interpersonal relationship, moment of life, ethnic identification and population ecosystem.

Interpersonal relationships have, therefore, an important role due to partnerships, exchanges of experiences and expanded knowledge that allow through experience. The moment of life is also a very important variable to define entrepreneurial behavior — financial stability, career and family structure directly interfere in decision making (Landstrom, 1999; Reynolds, 1992).

As for ethnic identification, the environment in which one lives, the contact with other people and the opportunities that the society in which the agent is inserted presents are pointed out as influencers. Finally, the system of relations and laws in which this agent is inserted, the political system, laws in its most diverse areas, consumer relations, competition, among others, is taken into account.

The anthropological theory of entrepreneurship, the fourth perspective of work, is then conceptualized presented by Simpeh (2011, p. 4) (Our translation):

> Cultural practices lead to entrepreneurial attitudes such as innovation that also led to venture creation behavior. Individual ethnicity affects attitude and behavior (Baskerville, 2003) and culture reflects particular ethnic, social, economic, ecological, and political complexities in individuals (Mitchell et al., 2002a). Thus, cultural environments can produce attitude differences (Baskerville, 2003) as well as entrepreneurial behavior differences (North, 1990; Shane 1994).

The fifth aspect of Simpeh (2011) is the theory of entrepreneurship based on opportunity, having as main names Peter Drucker (1985) and Stevenson and Harmeling (1989), who propose that the entrepreneur is looking for the opportunity to cause a change, whether in technology, in the preference of consumers, or creating something, evidencing the difference in relation to the administrator, which controls existing and planned resources according to Stevenson and Harmeling (1990).

Finally, the theory of resource-based entrepreneurship, which in turn can be divided into subgroups based on related resources, for example, financial, social capital, human capital, among others (Chandler & Hanks, 1998; Shane, & Venkataraman, 2000).

In general, resource-based theories assume that entrepreneurial action has a direct relationship with the disposition of the resource in question. The theory of entrepreneurship of human capital, for example, relates two factors: education and experience.

The knowledge acquired through the study and the lived experiences add to human capital, which in turn develops a differentiated look at identifying and exploring opportunities (Chandler & Hanks, 1998; Shane & Venkataraman, 2000).

This relationship was also described through empirical studies that indicated increased recognition of opportunities, the positive relationship between human capital and entrepreneurial capacity, and also the success of these entrepreneurs (Davidson & Honig, 2003).

In Klein's work (2008) there is a similarity with Simpeh's (2011) understanding. Klein (2008) simplifies divisions to address the topic, and proposes three focuses. They are: 1) Occupational; 2) Structural; 3) Functional.

The occupational concept treats the entrepreneur as his own employer, someone who makes the decision to stop being employed and create his own business. The structural vision judges an entrepreneurial structure/firm, not necessarily a person or action, and is commonly used to designate new firms, a concept widely used in the literature on industrial dynamics and growth of the firm Klein (2008).

The conception pertinent to this approach is functional, because it is conceptually associative with the entrepreneurial character of individuals. The functional approach, in Klein's reading (2008) is present in works of the authors of the Austrian school of economics — Schumpeter, Knight, Mises, among others. But it is through Schumpeter (1934) and, more specifically, Kirzner (1973) that this concept became operational.

Kirzner (1973) when investigating the relationships of price formation and market balance is positioned contrary to the previously proposed competition models, indicating that the main flaw is the absence of the entrepreneurial agent.

According to the author, the entrepreneur has a fundamental role in the formation of prices and market processes. The entrepreneur is then presented as someone capable of learning from market movements and specifically identifying profit opportunities (Kirzner, 1973, p.14,).

By defining the nature of the entrepreneur, it shows that the role played by him must be differentiated from the capitalist and the manager and that his nature is manifested in individual action, which takes into account the theories of maximization and efficient allocation, however for decision making is added the "extra economic entrepreneurial element", as mentioned by the author (Kirzner, 1973, p.31)

The functional approach to entrepreneurship is expressed by a set of capacities, such as judgment or discernment, innovation, coordination capacity and creativity gathered in individual action (Schumpeter, 1934; Malheiros; Ferla; Cunha, 2003).

With this approach, it is possible to idealize entrepreneurial action such as the creation of an economic activity with employment capacity, self-led occupation and behaviors that promote improvements in the productive process, administrative or search for opportunities within small and large companies, or even individually (KLEIN, 2008, p.177)

The functional concept is associated with the analysis of more recent authors, who gathered a set of qualities such as: 1) Decision capacity; 2) Effective judgment or discernment of reality; 3) Creativity applied to business; 4) Leadership behavior; 5) Perception of opportunities (Dolabela, 2008; Filion, 1999). These attributes have similarities to the set of skills and competencies of BNCC (2018).

ENTREPRENEURIAL EDUCATION

Entrepreneurial education can be defined as a set of training and activities, which tries to develop in its participants the entrepreneurial intention, as well as the knowledge that involves this field (Afriyie & Boohene, 2014).

Neck and Corbett (2018) define entrepreneurial education as the development of cognitive abilities, skills and the practice needed to start new ventures. Entrepreneurial education encompasses both topics related to entrepreneurship and knowledge related to Deveci companies (2021). And the understanding that the concepts of entrepreneurship and entrepreneurial education are increasingly recurrent in the educational curricula of several countries (Deveci & Seikkula-Leino, 2018; Lopes, 2010).

It is also necessary to differentiate between entrepreneurial education, as exemplified above and entrepreneurship education, which has greater conceptual emphasis and interest in definitions and with a more formal and historical characteristic (Haase & Lautenschläger,2011).

The development of entrepreneurial education requires an effective integration of resources within the school space and the aggregation of resources external to the school as a means of establishing reciprocity (Liu, Huo, He, Zuo, Qiu, & Zhao, 2021, p.4).

An example of interaction of internal and external resources is Gianotti and Silva (2019), which defines entrepreneurial education as pedagogical programs or teaching-learning process that develop entrepreneurial attitudes and skills. In the experiences of technical education, the emphasis on work experiences and practices, whether in a productive or simulated environment, through partnerships and instruments established by the legislation on professional learning enhance the entrepreneurial intention of young people.

Methodology and practice in the modality of entrepreneurial education differ from traditional (Lopes, 2010; Dolabela & Filion, 2013; Lima, Lopes, Nassif, & Silva, 2015), mainly in relation to the role of the teacher, as holder of all knowledge, and of the student as a spectator. Therefore, the student must win the role of protagonist (DOLABELA; FILION, 2013).

Schaefer and Minello (2016) in relation to the main aspects of entrepreneurial education highlights: the nature of entrepreneurial education, student-centered education, methodologies and practices, and the role of the teacher in this process.

As for its nature, the emphasis on the process, integrated, interdisciplinary and transversal training, in addition to learning by action, experimentation, contextual and cooperative is highlighted. Regarding the methods, it is pointed out that the learning process should be directly linked to the real world, recounting extracurricular activities that put the student in contact with the society in their surroundings and enabling the experience and interactivity (Schaefer & Minello, 2016).

As for the teacher, it is expected that he has a visionary and managerial profile (Lima, Hashimoto, Melhado, & Rocha, 2014), which provides practical training and organizes the objectives of learning with students.

Therefore, the teacher, by taking this position of facilitator, allows the student to gain the center of the process, and he must seek autonomy and the development of his personal goals within the teaching of entrepreneurship, being able to expose his ideas (Seikkula-Leino, Ruskovaara, Ikavalko, Mattila, & Rytkola, 2008).

For Huq and Gilbert (2017) this requires the school to be prepared to offer the necessary teaching conditions, including faculty able to develop the appropriate methodology. The role of the teacher is mainly mediation (LIMA *et al*. 2014). This should also have a profile that oscillates between visionary or director, with less emphasis on the role of executor, that is, a fulfiller of demands (Lima *et al*., 2014).

In the authors' view (Schaefer & Minello, 2016), a large number of teachers who take responsibility for teaching entrepreneurship often have no knowledge in the area or contact with appropriate practices, and are flagged as executors, since they are concerned about meeting the requirements of their position.

CONTRIBUTIONS OF APPLIED ORGANIZATIONAL STUDIES

The contribution structure of this section is based on seven articles from the Scopus base, with the algorithm: "organization & teaching; education & entrepreneurship; entrepreneurship & education." The concept of organizational structure adopted is that of Chandler (1962), that is, a

construction that demonstrates how the management of the company is carried out and how its internal and external relations take place.

This concern with the organizational structure is the sum of two factors, the first is evidence of the importance of the organizational structure as a catalyst for entrepreneurial actions within the organization, added to the theoretical framework on entrepreneurial education that indicates a series of needs to promote effective learning.

As for the influence of the organizational structure, Nielsen, Babi, Stojanović-Aleksić and Nikolić (2019) states that the entrepreneurial capacity and activity of employees tends to be more active in more flexible and organic organizational structures. Bierwerth, Schewns, Isidor, & Kabst (2015) points out that among the factors that influence entrepreneurial action, organizational architecture has a strong influence and this action is important, because the data indicate that the intra-entrepreneurial activity developed by employees is the source of many gains for the companies Gawke, Gorgievski and Bakker (2017).

In the work of Boon, Van Der Klink and Janssen (2013) it is verified that intra-entrepreneurial capacities in the educational sector play a fundamental role for entrepreneurial behavior, especially in the sense of risk-taking and innovation. For Huq and Gilbert (2017) from the school organization that favors the entrepreneurial environment, the learning process starts to induce the student to think and act as an entrepreneur, so that the actions of making, wronging, correcting and creating become common to their practices.

Bani-Mustafa, Toglaw, Oualid and Nimer (2021 p.13) (Our translation) present empirical evidence of the importance of organizational aspects. According to the authors:

> The results also show that both groups of faculty members (i.e., low versus high industry experience) think that organizational aggressiveness, organizational proactivity, organizational innovativeness, and organizational risk-taking are important to the organization's entrepreneurial orientation.

Al-Lawati, Kohar and Suleiman (2022) highlight the importance of the organizational profile for the dissemination of entrepreneurial culture, highlighting the role of educational institutions and also emphasizing that this education can happen through courses, workshops and lectures.

Kowang, Apandi, Hee, Fei, Saadon & Othman (2021) criticizes the content-based structure of entrepreneurial education programs in Malaysia, because through an econometric study, it has come to the conclusion that entrepreneurial education has a low correlation rate with the intention to undertake, and suggests that this is directly related, fact of the lack of opportunities for entrepreneurial experience and over-concern with theoretical content.

Regarding the organizational structure of technical education institutions, especially those in the field, as a technician in agriculture, Artoni (2012) defines among four essential elements: 1) Education in the field; 2) School structure; 3) Participatory management; 4) External partnerships.

In view of these notes, the organizational structure of the educational institution that seeks to develop entrepreneurial capacities will be evaluated in three aspects: I- Teaching Practices and II - Structure.

It is important to highlight that the entrepreneurial profile of an organization according to Miller (1983), is granted to the organization that is encouraged to innovate its products and services or markets, undertaken with deliberate risk and acts proactively before its competitors and market.

TEACHING PRACTICES

Practices for entrepreneurship teaching have their specific characteristics, especially attention is drawn to practice and experimentation during this learning process (Lopes, 2010; Dolabela. Filion, 2013; Lima *et al*., 2015). To illustrate in a more accessible way, Dolabela (2008) cast

the main differences between conventional education and entrepreneurial education, or less as it should be.

As characteristics of conventional education, the author lists the emphasis on rigid content, curriculum and programmatic content, emphasis on analytical thinking, concern with theoretical and abstract knowledge, among others. In opposition, entrepreneurial education is characterized by the emphasis on the learning process, flexible curriculum and open to interventions due to the group's need, priority in self-image, conjectures and flashy divergent thoughts as part of the creative process, valorization of the student's prior knowledge, errors as a source of knowledge and the relationship between teacher and students as of fundamental importance.

Nassif, Amaral and Prando (2012) reinforce the importance of entrepreneurial education in a way that simulates practical learning through situations such as junior companies, technical views and even the creation of study groups by areas of interest that stimulate research in innovation and technology, valuing reflection and discussion, preparing students for the labor market.

Lima *et al*. 2014, when referring to the entrepreneurial teaching practices of higher education institutions, lists a series of organizational notes that contribute to this intention. The first aspect that the author draws attention to, is that any course, discipline or program focused on the subject of entrepreneurship, should not be limited to dealing only with the creation of new businesses, is more valuable the concern to develop skills that may be useful in a future business.

Dolabela (2008), more focused on practice and less on content, suggests exploring the interdisciplinarity and transversality of the academic environment (Lima *et al*., 2014; Tschá & Cruz Neto, 2014).

Rocha e Freitas (2014), summarizing the good practices for teaching entrepreneurship, present methods, techniques and resources and their applications. In general, the methods are very varied and seek to involve individual and collective activities, in the search to develop capacities through reflection and sharing of ideas. Examples presented by the authors are: Visits and contacts with companies; Business Plan; Case Studies; Incubators; Business plan competitions; Company games and simulations, among others.

Rocha and Freitas (2014) seek to explain each of these methods and highlight the importance of developing skills and competencies, making content a basis for development, but not as an exclusive element of teaching.

The methods presented by Rocha and Freitas (2014) are also present in works by other authors. The exercise of incubators can also be observed in the studies of Gimenez, Camargo, Moraes and Klosowski (2014), Oliveira e Barbosa (2014), and Marinho (2016); the creation of companies and products in Marra, Albrecht and Souza (2014); discussion groups, events and contact with other entrepreneurs in Lopes (2010), Hashimoto (2013), Tschá and Cruz Neto (2014), as evidenced by the author himself, and also by Schaefer and Minello (2016).

Seeking to offer more support to what was proposed by Rocha e Freitas (2014), it is resuming what is proposed in the New Common National Curriculum Base, provided for in Law 13,415 (2017), especially concerning the so-called Curricular Units:

> Curricular units are elements with pre-defined time load whose objective is to develop specific competencies, whether basic general training or training itineraries [...] schools can choose to create units that best respond to their contexts and conditions, such as projects, workshops, contextualized practical activities, among other work situations (Implementation Guide, 2018, p.14) (Our translation).

Thus, the MEC lists possible Curricular Units and their applications, which are presented in Chart 1, very similar with much of the methodologies proposed by Rocha and Freitas (2014), both in their execution and in their applicability for teaching.

Table one - Curricular Units and their Applications

Course Units	Aplications
Laboratories	entails activities that involve observation, experimentation, and production in a field of study and/or the development of practices in a particular field (languages, journalism, communication and media, humanities, natural sciences, mathematics, etc.).
Workshops	spaces for the collective construction of knowledge, techniques, and technologies that enable the articulation between theory and practice (production of objects/equipment, "court" simulations, comics, audiovisual, subtitling, fanzine, creative writing, performance, statistical production, and processing, etc.).
Clubs	freely associated groupings of students with commonly shared tastes and opinions (reading, environmental conservation, sports, film club, fan club, fandom, etc.).
Artistic creation centers	develop creative and collaborative processes, based on the research interests of young people and on the investigation of corporal, spatial, musical, literary textual, and theatrical aspects present in their lives and in the cultural manifestations of their communities, articulating the practice of artistic creation with the appreciation, analysis, and reflection about historical, aesthetic, social, and cultural references (integrated arts, video art, performance, urban interventions, cinema, photography, slam, hip hop, etc.).
Observatories	groups of students proposing, based on a defined problem, to follow, analyze and monitor the evolution of phenomena, the development of public policies, etc. (press, youth, democracy, community health, community participation in decision-making processes, environmental conditions, etc.).
Incubators	stimulate and provide ideal conditions for the development of a certain product, technique, or technology (digital platforms, communication channels, electronic pages/websites, intervention projects, cultural projects, prototypes, etc.).
Study centers	develop studies and research, promote debate forums about a certain topic of interest and disseminate knowledge through events - seminars, lectures, meetings, colloquiums -, publications, campaigns, etc. (youth, diversity, sexuality, women, youth, and work, etc.).

Source: Prepared by the authors (2023).

It is important to evaluate that the methods of the Curricular Units are very similar to those presented by the authors of the area of entrepreneurship teaching. There is also similarity in relation to the concern with the development of skills and competencies, as presented in relation to the methods of Chart 1.

Another point relevant to the theme of entrepreneurial education and its connection with the theory of entrepreneurship, namely the presence of several methods that do not place the teacher as disseminator of knowledge but a facilitator.

Often, the teacher becomes a mediating figure with the ability to organize the development of learning through a set of practices such as seminars, debates, appreciation of films and videos, discussion groups and suggestion of readings.

Organizational development, both from the perspective of the teacher and the school board, must in fact be understood so that the work to support mediation and organization of auxiliary tasks, as mentioned above, is operationally viable.

Other methods indicated place the teacher as a diplomatic articulator for the feasibility of interactive practices with other institutions such as visits to companies, participation in trade fairs

of business segments, academic events of academic associations, games of companies and simulations.

Among the skills and competencies are the development of written and oral communication skills, understanding the functioning of markets, risk analysis, autonomy, critical and creative capacity, management and interpersonal relationship skills and others (Rocha & Freitas, 2014).

STRUCTURE

They will be considered in this section, physical structure and administrative structure, in this order, seeking to investigate which options best meet the requirements of a technical education with impact on entrepreneurship.

Physical structures

As stated in the site of National Catalog of Technical Courses (CNCT), with regard to the courses of technician in agriculture, agribusiness and agribusiness, all have as an obligation the minimum infrastructure necessary, Library with specific and updated physical or virtual collection, as well as laboratories, such as Computer Laboratory, Biology Laboratory and in the case of the technician in Agriculture, including teaching units of animal production, plant, mechanization, storage and agro-industrial processing.

According to the MEC, professional technical training seeks the development of skilled labor through the perspective of integral human training, uniting manual and intellectual work, that is, search beyond theory, practical opportunities, hence the justification for the need for infrastructure, very similar to the premises of entrepreneurship teaching, which highlight the importance of practice as well (Lima et al., 2014; Dolabela & Filion, 2013).

Starting beyond the regulated minimum, there are suggestions for other structures that help institutions achieve the objectives of technical education and assist in the development of entrepreneurial skills.

An auxiliary structure found in technical schools in Brazil or Federal Institutes is related to professional development and career follow-up, which aim to guide and develop the skills and abilities necessary for social interaction, personal and professional training to meet and meet challenges.

Through auxiliary structures such as this, it is possible to better prepare the student for the job market, through guidance and monitoring of career possibilities, developing skills such as autonomy, planning and mainly developing the life project, an extremely important topic for BNCC.

In terms of illustration of activities for auxiliary structures, the development of a professional curriculum, the management of social work networks such as LinkedIn and other means focused on the presentation of the content of future graduates create a link between the present study and the imagined future challenge. The skills of written communication and interpersonal relationships are present at the present time as a laboratory for intellectual development and improved social interaction.

A second structure consists of a center that gathers elements or content related to technology and innovation, a physical space in which the students of the institution can meet to discuss ideas of new business, with the support of tutors who help the development of projects.

The incubators highly recommended in the literature of entrepreneurship (Gimenez et al., 2014; Oliveira & Barbosa, 2014; Rocha & Freitas, 2014; Marine, 2016) and are present in some institutions that offer technical and technological education.

These spaces are relevant to the connection of students with the world of work and the achievement of experiences that can function as "tutors" without so much formality in programmatic terms.

As presented in Chart 1, the incubator practice is an example of a Curricular Unit, since they stimulate and offer conditions for the development of ideas and prototypes, in addition to fulfilling a fundamental role within the BNCC to stimulate the student to interact with the environment in which he/she lives and use his own experience to develop knowledge.

Shu, Ren and Zheng (2018), proposes that incubators should be thought of as a 3-step pyramid. The base is formed by the structures and departments of the educational institution, in which students will have access and should use to develop their projects. The body is formed by physical spaces and events held by the institution that allows integration between companies in the area with students, presenting and working interdisciplinary projects with the help of specialists. Finally, the top of the pyramid is reserved for teams that are in a more advanced development phase, which will have many contacts with companies and industries in the region to develop their projects, is the last step that holds a startup to the university.

Administrative structure

The first aspect to be taken into account in relation to the administrative structure, are the choices in relation to the course offered and their experiences. Once again consulting the CNCT, it was found that there is no obligation to conduct curricular internship for courses in the agribusiness area, so a first suggestion would be the adoption, by the educational institution, to include this activity in its planning.

A second aspect that should be considered is in relation to the faculty, because it is crucial to achieve the objectives of entrepreneurial education (Seikkula-Leino *et al* 2008).

Lima *et al*. (2014) suggests that the institution should seek and stimulate the hiring and training of teachers who can reconcile academic training with entrepreneurial practical experience, we can also add to this suggestion practical experience in the technical area in which it operates.

The profile of the teacher itself, as previously presented, is also a concern, Tschá and Cruz Neto (2014) describe that teachers should forget the old function of centralizing knowledge and start acting as leaders, counselors and mediators. Hashimoto (2013) points out that the relationship between teacher and student should be one of exchange of experiences and experiences, in dynamic and bilateral approaches and the author points out, that the training of this professional is essential to achieve this goal.

Shu, Ren and Zheng (2018) proposes that a team should be created for the development of entrepreneurial skills, involving an internal part, this being teachers and an external part composed of four profiles, specialized technicians, entrepreneurs, business administrators and artisans with great experience.

In the aspect of experiences and the relationship between the educational institution and society, the promotion of entrepreneurial education must be built in an intertwined way, with internal and external aspects coordinated by the school and government, business specialties from various sectors (Liu *et al*., 2021).

Therefore, it is necessary to reflect on the administrative structure that can encourage and promote this connection between academic society and external society, in order to promote this exchange of experiences so well evaluated by the literature.

A good start is to put people already in the labor market in contact, occupying the most diverse positions, with students, through invitations to lectures, debates and discussions, as proposed by Rocha and Freitas (2014). This is a good first option, because the costs involved are lower as well as the logistical complexity, requiring no large auditorium, sound installations, etc.

If possible, one can evolve these one-time conversations to workshops and lectures, such as an academic, technical or technological event, one can seek longer-lasting partnerships with companies, either for internships or just for exchanging experiences.

These first ideas use the physical space of the educational institution to promote these events, but one should also take into account the possibility of extra campus activities, such as visits to companies, industries, plantations and production units.

Academic events such as SGAgro promoted by UNESP Jaboticabal, enable dissemination of specific knowledge of the area, through lectures, workshops and presentations of academic works, involve technical education students in this type of event, allows them to witness how is the academic environment, what trends and technologies are under development and contact with professionals in the area in which it is inserted.

Other events that undoubtedly serve as a great opportunity, are the Agricultural Exhibitions (EXPOAGRO) and International Fairs of Agricultural Technology in Action (Agrishow), which has content from a number of agribusiness areas, with exposure of high-tech products, new services, large companies in the market and several other opportunities.

Shu, Ren and Zheng (2018) lists the agents of society that are possible partnerships and that should be taken into account when developing interinstitutional relations: **Local government:** it can promote subsidies, financing and technological cooperation partnerships; **New product users:** can assist in market research and survey of improvement points for projects; **Universities and Research Institutes:** it has by nature an innovative spirit and are ahead of technological advances and access to industry, can serve for technological cooperation and also as an example; **Industrial Partners: allows** access to the real demands of the industry, favors the exchange of experiences between teams; **Financial institutions:** can aggregate with information about the local economy and tax policies, they can also be a possible financier of projects; **Intermediaries:** they act by bridging the gap between institutions, networking and connecting the needs of both.; **Trades:** can assist in obtaining raw materials and material distribution partnerships; **Media:** makes relevant the advances and projects developed in the institution, in order to attract interested parties for partnerships and investments.

Finishing the part of the administrative structure, one can also consider student organizations, be they clubs, study groups, athletics or junior companies. Through these institutions attached to the educational institution, students will be able to organize themselves, exercise leadership and responsibility at the same time, place and with the people involved in the pedagogical construction of perceptions and worldviews.

The practical functioning of an organization, that is, its routine is in the field of work itself so that young people have the opportunity of consistent learning, through accountability, marketing, fundraising and strategic organization.

Even better would be, if the management of the institution debuted mechanisms for students' representatives to participate in administrative councils, budget discussion, monitoring the preparation of multiannual strategic plan, pedagogical plan, creating a different relationship with administrators. This means of work can more consistently welcome the intentions and concerns of students who study there with their own future.

CONCLUSION

Discussions regarding teaching, especially concerning entrepreneurship education have recently gained stage, driven by reforms in the educational bases of the country and especially in the reform of high school, which presents entrepreneurship as one of its structuring axes.

Although the discussion on the development of skills and competences has been presented with greater emphasis on this reform, this topic has been a point of discussion for time in the field of entrepreneurial education. This aspect that breaks with the technical characteristic of education of the past, is reaffirmed through the expectations and demands of the world of work, which currently has more space for people with socioemotional abilities, leadership and creativity.

As presented in the introduction, the hypothesis of the work is that for the complete development of the student towards these skills and competencies, it is necessary in addition to a guiding document such as the BNCC, structures that allow students to have access to the necessary orientations, contact with society and the world of work, as well as the opportunity to play an active role in their training.

Through the investigations made by this work, three main contributions are highlighted in relation to the organizational aspects of educational institutions that seek to develop entrepreneurial skills in their students.

The first is the characteristics of teaching methodologies for entrepreneurship; The recommendation of the practice is recurrent in the literature, giving the student the opportunity to perform and transforming the error into an example of learning and not an indicator of failure. Simulations and exchanges of experiences are also examples of methodologies consistent with the purpose of entrepreneurial teaching, allowing students and teachers to interact, bringing their knowledge and experiences from the world, consequently various visions and possibilities, adding even more to learning.

According to the constitution of the faculty, the need to seek multidisciplinary members, with experience not only in education, but also in the technical areas and experience with entrepreneurship. Added to this characteristic in relation to teacher education, it is also emphasized the importance of the teacher recognizing his role as mediator and promoter of opportunities, always seeking to insert the student as an active subject of the learning process and not passive.

The last contribution is the importance of offering opportunities for students to live different experiences, whether through internal physical structures, such as courts, laboratories, study rooms, meeting spaces, or auxiliary sectors within the institution, such as career center, internship coordination, event sector and public relations, student association, etc.

It can also be highlighted, in the aspects of the opportunities of experience, the partnerships with external institutions, such as municipalities, universities, NGOs, companies, press, and also attendance at academic events, innovation fairs, workshops and lectures.

It is clear that the implementation of these recommendations, as well as other recommendations presented by other authors concerning entrepreneurial education faces some barriers such as skilled labor, insufficient funds, legal difficulties, among others, aspects that can be considered as challenges to be overcome.

Thinking about the continuity of this research branch, focused on the practices and methods of entrepreneurial education, future research could better evaluate the impact of organizational structures, relating them to the employability of graduates, opening of enterprises and the students' own evaluation in relation to experience.

Another point that is brought to the discussion by many authors is that even though research in the area of entrepreneurial education is showing great growth, there are limitations to the discussion, since there is a lack of empirical research, capable of measuring the impacts of entrepreneurial education on the education of students.

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