

ENTREPRENEURIAL POTENTIAL: A STRATEGIC DECISION-MAKING TOOL FOR SCHOOL AND COLLEGE COORDINATORS

O POTENCIAL EMPREENDEDOR: FERRAMENTA DE DECISÃO ESTRATÉGICA PARA COORDENADORES DE ESCOLAS E DE FACULDADES

EL POTENCIAL EMPREENDEDOR: HERRAMIENTA DE DECISIÓN ESTRATÉGICA PARA COORDINADORES DE ESCUELAS Y FACULTADES



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ABSTRACT: The transformations in the labor market and the growing importance of entrepreneurial competencies highlight the need for instruments that support educational institutions in preparing students for professional insertion. This study presents a strategic management tool designed to assess the entrepreneurial potential of secondary and higher education students, supporting pedagogical planning. The theoretical framework is based on the contributions of McClelland, Mansfield, Ajzen, and Shapero. This exploratory, applied study adopted a qualitative approach, combining literature review and the application of an adapted questionnaire to 177 students from a technical education institution. The results demonstrated the feasibility of the tool for measuring entrepreneurial competencies and identifying opportunities for pedagogical intervention, although no significant progression was observed across school grades. The study concludes that the instrument strengthens educational management by supporting pedagogical planning and fostering students' employability and entrepreneurial development.

KEYWORDS: Educational management. Entrepreneurship. Entrepreneurial competence. Entrepreneurial intention. Pedagogical planning.

RESUMO: As transformações do mercado de trabalho e a valorização das competências empreendedoras evidenciam a necessidade de instrumentos que apoiem as instituições de ensino na formação para a inserção profissional. Este estudo objetiva apresentar uma ferramenta de gestão estratégica para avaliar o potencial empreendedor de estudantes do ensino médio e superior, subsidiando o planejamento pedagógico. Fundamenta-se nas contribuições de McClelland, Mansfield, Ajzen e Shapero. Trata-se de pesquisa exploratória, de natureza aplicada, com abordagem qualitativa, desenvolvida por meio de revisão de literatura, análise de conteúdo e aplicação de questionário adaptado a 177 estudantes de uma instituição de ensino técnico. Os resultados demonstraram a viabilidade da ferramenta para mensurar competências empreendedoras e identificar oportunidades de intervenção pedagógica, embora sem evolução significativa entre as séries. Conclui-se que o instrumento fortalece a gestão educacional ao subsidiar o projeto político-pedagógico e favorecer a empregabilidade e o empreendedorismo estudantil.

PALAVRAS-CHAVE: Gestão educacional. Empreendedorismo. Competências empreendedoras. Intenção empreendedora. Projeto político-pedagógico.

RESUMEN: Las transformaciones del mercado laboral y la creciente importancia de las competencias emprendedoras evidencian la necesidad de instrumentos que apoyen a las instituciones educativas en la formación para la inserción profesional. Este estudio presenta una herramienta de gestión estratégica para evaluar el potencial emprendedor de estudiantes de educación secundaria y superior, orientando la planificación pedagógica. Se fundamenta en los aportes de McClelland, Mansfield, Ajzen y Shapero. Se trata de una investigación exploratoria, de naturaleza aplicada y enfoque cualitativo, desarrollada mediante revisión de la literatura, análisis de contenido y aplicación de un cuestionario adaptado a 177 estudiantes de una institución de educación técnica. Los resultados demostraron la viabilidad del instrumento para evaluar competencias emprendedoras e identificar oportunidades de intervención pedagógica. Se concluye que la herramienta fortalece la gestión educativa al respaldar la planificación institucional y favorecer la empleabilidad y el desarrollo emprendedor de los estudiantes.

PALABRAS CLAVE: Gestión educativa. Emprendimiento. Competencias emprendedoras. Intención emprendedora. Planificación pedagógica.

INTRODUCTION

The objective of this paper is to contribute to the strategic management of secondary and higher education institutions, with a focus on the employability and entrepreneurship of their graduates, through the use of a management tool. The proposal for this tool stems from a research problem, namely, the entry of high school and college graduates into the labor market. This entry can occur through employment, self-employment, or by starting their own business.

The integration of graduates into the labor market is a key issue in economic development and can become part of the political and pedagogical agenda of educational institutions when tools are created to enhance student behavior within the context of these institutions' educational programs (Almeida & Chaves, 2015; Susanti, 2023). In the context of education, that is, prior to graduation, assessments of young people's entrepreneurial intent conducted by educational institutions can contribute to their preparation for the labor market (Talukder et al., 2024), without interfering with their preparation for college entrance exams or the development of final-year projects, in the case of university students (Yohana, 2020).

Entry into the labor market, regardless of the type of occupation, can be strengthened when an appropriate tool provides qualitative information about attributes necessary for intellectual and behavioral development (Zampier & Takahashi, 2011). Preparing students from an occupational perspective has been a challenge for educational institutions (Fute et al., 2024). The focus on college entrance exams and the requirements of state and municipal departments of education dominate the implementation of schools' pedagogical policies. As a result, employment prospects become almost exclusively a matter for graduates.

An additional issue is conceptual: that is, the notions of labor supply and demand are not subjects of systematic investigation or understanding by educational institutions, and consequently, the school-profession-labor market interaction could be improved with an easy-to-use tool (Perim, 2015). Although the relationship between education and work is well-developed in the literature, adequate preparation for students' transition into a new socioeconomic—that is, productive—context requires objective factors that enhance these individuals' entrepreneurial intent (Joensuu-Salo & Varanmäki, 2022; Pitelis & Runde, 2017).

The term 'Entrepreneurial Intention' encompasses behavior associated with both the development of future careers and the possibility of creating new productive activities. Therefore, entrepreneurial intention is represented by a behavior, as proposed by Klein (2008). From the conceptual perspective that explains the meaning of entrepreneurial intention, the quantitative reality of the labor market is the material aspect that justifies actions to enhance

this intention. Data from the Brazilian Institute of Geography and Statistics' (IBGE) Continuous National Household Sample Survey illustrate the environment that new entrants will face (Frota et al., 2022).

Data from the first quarter of 2025 show that, in the 14–17 age group, there are 11.746 million individuals of working age, corresponding to 6.7% of the total labor force. In the 18–24 age group, the number is 21.188 million individuals, corresponding to 12.1%. The 14- to 24-year-old age group accounts for 18.8% of the working-age population (IBGE, 2025).

Of the total number of people of working age in the first quarter of 2025, 1.837 million young people aged 14 to 17 were in the labor force, representing 1.7% of the total labor force. In the 18-to-24 age group, there were 14.557 million people, or 13.4% of the total labor force. Together, these two age groups account for 15.1% of the available labor force (IBGE, 2025).

As for the employment situation, there were 1,375,000 people aged 14 to 17, or 1.3% of the total. In the 18–24 age group, there were 12,547,000 young people, or 12.3% of the total employed population. The sum of both age groups accounted for 14.6% of the employed population (IBGE, 2025).

Finally, two other pieces of evidence help characterize the current conditions of the labor market. The first is the share of unemployed individuals aged 14 to 17 and 18 to 24 in the total number of unemployed. The first age group accounts for 7% of the unemployed, while the second accounts for 30% of the total unemployed. The second piece of evidence is the total number of individuals outside the labor force in these two age groups (IBGE, 2025).

The percentage of individuals outside the labor force in the 14- to 17-year-old age group accounted for 14.9% of the total, while in the 18- to 24-year-old age group, it reached 10%, both compared to the first quarter of 2025. In total, the population outside the labor force in Brazil numbered 66,525,000 people (IBGE, 2025).

The average earnings of formal workers, according to the 2024 Annual Social Information Report, were R\$ 3,706.00. Workers aged 17 and under earned, on average, R\$ 1,935.00, and those aged 18 to 24 earned R\$ 2,178.00 (Brasil, 2025).

In the first quarter of 2025, the average income for all workers, according to the IBGE's (2025) National Household Sample Survey, was R\$ 3,610.00. For those aged 17 and under, the most recent data showed an average of R\$ 1,042.00 in 2026, compared to R\$ 1,033.00 in the first quarter of 2025. For the 18- to 24-year-old age group, the figure for the first quarter of 2026 reached R\$ 2,041.00, compared to R\$ 1,977.00. The data shows that the salary for formally employed workers is higher than the average for all occupations in Brazil.

There is another source of evidence that also motivated this study. The legal and institutional frameworks governing labor, high school education, and social security underwent changes over the past decade at three distinct points: the labor reform passed in 2017 and the social security reform in 2019 altered the costs of employment contracts, on the one hand, and the conditions for retirement, on the other. The 2017 secondary education reform and the 2019 Economic Freedom Act introduced greater flexibility in the way applied knowledge is taught and reduced bureaucratic hurdles for starting and closing businesses.

These changes, which consolidated a new institutional landscape, altered individuals' time horizons in the labor market—with regard to labor and social security rights, on the one hand, and the role of the new high school system and the Economic Freedom Act, on the other. The consolidation of a new institutional landscape brings education and entrepreneurship back into the spotlight. With this focus, this study aims to answer the following question: How can we assess the development of entrepreneurial behavior among students in high school and higher education institutions?

Based on the research question, a tool was developed to assess the development of students' entrepreneurial behavior throughout the educational cycle. The hypothesis of this study is that entrepreneurial behavior—as identified and measured by the tool—evolves as students progress through the educational cycle.

The originality of the assessment tool lay in the adaptation of existing knowledge, giving the study the characteristics of a technical product.

First, the originality lay in offering an assessment tool as a management instrument for coordinators to verify the results of their educational policies regarding the development of entrepreneurial intentions.

Second, questions related to entrepreneurial behaviors were removed or adapted from those originally aimed at entrepreneurs with already established businesses.

Third, the language was adapted to an audience in high school and higher education.

The text is organized as follows: the second section discusses the practical aspects of the literature on entrepreneurship education; the third section presents the methodology underlying the case study; the fourth section discusses the results; and the fifth section presents a critical set of managerial recommendations for educational institutions, based on a social technology that allows for monitoring both the outcomes of students' entrepreneurial intentions throughout their academic careers and the outcomes of graduates and currently enrolled students.

PRACTICAL ASPECTS OF THE LITERATURE ON ENTREPRENEURSHIP EDUCATION

Entrepreneurship is a widely discussed topic in the academic environment of educational institutions (Faridah & Ansar, 2022; Perim, 2015). The literature documents the growth of this topic and the resulting adaptation of school curricula, which are geared toward the systematic training of potential entrepreneurs (Iizuka et al., 2024; Moberg, 2014; Schelfhout et al., 2016; Yohana, 2020).

Educational institutions have incorporated courses related to entrepreneurship into their curricula (Dabale & Masese, 2014; Mamun et al., 2017; Pitelis & Runde, 2017). The literature, in turn, highlights, on the one hand, the risks of overestimating the effectiveness of entrepreneurship education approaches (Martinez-Gregorio et al., 2021; Støren, 2014) and, on the other hand, the benefits of such content for the education of high school students (Iizuka et al., 2024; Moberg, 2014; Yohana, 2020).

However, there is still no common tool for systematically and organizedly assessing the elements that define entrepreneurial intent (Almeida & Chaves, 2015; Dinis, 2024; Nielsen et al., 2025). Although the available literature on entrepreneurship education is diverse and abundant, two aspects make it difficult to measure the relationship between curriculum content and entrepreneurship education.

The first aspect concerns the term “entrepreneurship education,” for which there is still no consensus on its definition (Martinez-Gregorio et al., 2021). According to Mamun et al. (2017), performance indicators (Key Performance Indicators – KPIs) are selected arbitrarily from a predetermined list to assess the effectiveness of programs and policies aimed at promoting entrepreneurial education.

The second aspect concerns the determinants of entrepreneurial intentions, which are rooted in culture and influenced by factors that are intrinsic and/or extrinsic to the entrepreneur (Engidaw, 2021; Munir et al., 2021). Thus, it can be argued that a student’s actions result from a combination of multiple heterogeneous factors (Ohanu & Shodipe, 2021).

Intrinsic factors relate primarily to individuals’ entrepreneurial attitudes and experiences (Hou et al., 2019). Extrinsic factors, in turn, can have diverse origins, being related both to the human and physical resources made available and to the school’s institutional reputation (Ohanu & Shodipe, 2021).

The entrepreneurial school environment or ecosystem is also an extrinsic determinant that influences students' intentions (Bayar et al., 2022; Casagrande & Brusco, 2023). These ecosystems are composed of diverse and independent actors and factors, organized with the purpose of fostering entrepreneurship (Dong et al., 2019; González-Serrano et al., 2021).

The difficulties inherent in establishing this ecosystem in high school represent a deviation from the schools' primary mission, as noted earlier. Thus, it is important to evaluate tools that, in conjunction with the school's Pedagogical-Policy Project, enable the identification of student attributes that can be developed through specific curricular content (Aranha et al., 2026)—both to prevent school dropout and to foster entrepreneurship education.

In the context of entrepreneurship education, the elements intrinsic to the individual take on significance and should be leveraged in accordance with the school's strengths and preferences regarding the selection of educational pathways (Chen et al., 2018; Klein, 2008). Extrinsic factors can influence entrepreneurial intent in multiple ways (Santos et al., 2023). During economic crises, such as the one caused by the COVID-19 pandemic, downturns were observed in various sectors of the economy, characterized by business closures and employee layoffs (Dong et al., 2019; González-Serrano et al., 2021).

This type of scenario tends to foster necessity-driven entrepreneurship, in which entrepreneurs do not necessarily create jobs but seek an alternative to their own unemployment (Frota et al., 2022). Unlike necessity-driven entrepreneurship, opportunity-driven entrepreneurship arises when the potential entrepreneur has other options available, including professional ones. From this perspective, the individual can focus their efforts on creating new ventures or improving those they already own (Arrighetti et al., 2016; Frota et al., 2022).

Various theoretical frameworks have been used to analyze the origins of entrepreneurial intention (Ajzen, 1991; Hou et al., 2019; Kowang et al., 2021; Krueger Jr. et al., 2000; Lv et al., 2021; Munir et al., 2021; Ng et al., 2019; Ohanu & Shodipe, 2021; Shapero, 1982).

Shapero (1982) and Krueger Jr. et al. (2000) argue that the decision to start a business may stem from specific situations but may also reflect cumulative factors. Ajzen and Fishbein (1977) and Bagozzi et al. (1989) lead to the understanding that intention, as a specific form of volition, transforms a psychological state into a directed bodily response. This perspective has implications for understanding the link between attitudes and behaviors.

The aforementioned studies link intentions to entrepreneurial behavior. Intentions are predicted by attitudes, by the influence of subjective norms that guide the execution of behavior, and by the individual's perception of control over their own behavior (Ajzen, 1991; Ngugi et

al., 2012). According to Ngugi et al. (2012), models based on Ajzen's (1991) approach continue to predominate in social and psychological research on intentions.

Determining the role of intentions in the relationship between attitude and behavior is of great importance, whether for conceptual, philosophical, or practical reasons (Bagozzi et al., 1989). The link between attitudes and behaviors, associated with the identification of motivational needs, was developed by McClelland (1961); subsequently, entrepreneurial behavioral characteristics were defined by the same author (McClelland, 1972).

Attitudes are used to capture behavior (McClelland, 1987). Thus, attitudes have become useful tools for behavioral assessment through the observation of attitudinal patterns. Table 1 presents the attitudes that define a behavior and their respective motivational sources, which drive human behavior (McClelland, 1987).

Table 1.
Entrepreneurial behaviors and attitudes

Behavior	Attitudes
Initiative	Do things before being asked or forced to by the situation
Assertiveness	Address problems with others directly. Tell others what they should do
Insights and actions regarding opportunities	Take advantage of unusual opportunities to secure funding, workspace, or assistance
Focus on efficiency	Look for ways and methods to get things done faster or at a lower cost
Commitment to high-quality work	Set a goal to produce or sell the best or highest-quality product or service
Systematic planning	Plan by breaking a large task into smaller tasks, anticipate obstacles, and evaluate alternatives
Monitoring	Develop or use procedures to ensure that work is complete or meets quality standards
Commitment to work	Make personal sacrifices or exert extraordinary effort to complete a task, work alongside employees, or work in their place to ensure the work is done
Self-confidence	Express confidence in one's own ability and judgment to complete a task or handle a challenge
Persistence	Try again or take different actions to overcome obstacles
Persuasion	Persuade someone to purchase a product or service or to provide funding. Assert one's own competence, reliability, or other personal or organizational qualities
Use of influence strategies	Take action to develop business contacts; use influential people as agents to achieve one's own goals

Seeking information	Conduct research on how to offer a product or service; consult experts to obtain useful information
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Note. McClelland (1987, adapted).

Table 1 was adapted for individuals who have no prior experience in formal business, as is the case for a significant portion of high school and college students.

METHODOLOGY

In many studies, the research methodology for investigating the relationships between entrepreneurial intention and attitudes is based on the use of questionnaires as a tool (Hou et al., 2019; Kowang et al., 2021; Munir et al., 2021; Ng et al., 2019; Ohanu & Shodipe, 2021; Støren, 2014). This study is exploratory, applied in nature, and combines qualitative and quantitative methods. The research involved a literature review and content analysis.

Based on the work of McClelland (1987) and Mansfield et al. (1987), UNESCO has adapted and applied its tool for characterizing entrepreneurial behavior in more than 40 countries since 1991. To enable the identification of the intrinsic elements of entrepreneurial intentions in this study, a questionnaire was developed to assess entrepreneurial behavioral characteristics, also based on the methodologies of McClelland (1987) and Mansfield et al. (1987).

Based on the critical review conducted earlier, we used a set of scenarios—as described by McClelland (1987) and Mansfield et al. (1987)—that elicit from the target audience their own interpretation of the hypothetical situation presented in the questionnaire. Using this method of obtaining responses, it is assumed that the results of a set of responses to the situations presented to respondents can be used to characterize potential entrepreneurial behavior. The questionnaire adapted from Mansfield et al. (1987) presents the competencies related to the 13 behaviors listed in Table 1. Table 2 presents the 70 situations related to the attitudes that reflect the behaviors to be investigated.

Table 2.

Situations included in the self-assessment questionnaire

Question	Situation
1	I look for jobs or tasks that are waiting to be done
2	I like to take on challenges and new opportunities
3	When I encounter a difficult problem, I take the time needed to find a solution
4	When I start a task or project, I try to gather as much information as possible

5	It bothers me when I notice things or tasks that aren't done very well
6	I put a lot of effort into my work or tasks
7	I look for different ways to get things done more quickly
8	I plan to carry out a complex project or task by breaking it down into smaller tasks
9	I come up with unconventional solutions to problems
10	I'm confident I'll succeed at anything I set out to do
11	I tell people directly when their performance hasn't met expectations
12	I get others to support my recommendations
13	I develop strategies to influence others
14	I listen attentively no matter who I'm talking to
15	I complete tasks that need to be done before others ask me to do them
16	I prefer tasks I know well and feel comfortable with
17	I try several times to convince people to do what I'd like them to do
18	I ask for advice from people who are very knowledgeable about the problems or tasks I'm working on
19	It's very important to me to produce high-quality work
20	I work long hours and make personal sacrifices to complete a project on time
21	I'm not good at managing my own time
22	I weigh the pros and cons of different ways to complete a task
23	I have many new ideas
24	I change my mind if others strongly disagree with my position
25	I tell someone when I'm upset or angry with them
26	I convince others of my ideas
27	I don't spend much time thinking about how to influence others
28	I get resentful when I don't get what I want
29	I do things even before I clearly understand whether they need to be done
30	I pay attention to opportunities to try new things
31	I keep doing what I want even if something gets in the way
32	I start doing things without looking for information first
33	I do my work better than my colleagues
34	I do whatever it takes to complete a task
35	It bothers me when my time is wasted
36	I try to think of all the problems I might encounter and what to do if they happen
37	Once I decide how to solve a problem, I don't change my approach
38	When I'm doing something difficult or challenging, I feel confident that I'll be able to complete it successfully
39	I have a hard time getting others to do things
40	I show others how capable I am of accomplishing what I set out to do
41	I convince important people to help me achieve my goals
42	I've experienced failures in the past
43	I act before it's clear whether I should act
44	I try to do things that are very new and different from what I've done before
45	When I encounter a major difficulty, I quickly move on to other things
46	When I'm working on a task or project for someone, I ask lots of questions to make sure I understand what they want
47	When I do something satisfactorily, I don't spend any more time trying to improve it
48	When I do work for someone, I go the extra mile to ensure they're satisfied with my work

49	I look for ways to do things at a lower cost
50	I prefer to deal with problems as they arise rather than spend time trying to anticipate them
51	I think of various ways to solve problems
52	I take risks
53	When I disagree with someone, I let that person know
54	I'm quite persuasive with people
55	To achieve my goals, I think of solutions that benefit everyone involved in the problem
56	There have been times when I've taken advantage of other people
57	I wait for guidance before taking action
58	I take advantage of opportunities that arise
59	I try various different ways to overcome obstacles in order to achieve my goals
60	I turn to various different sources to obtain information that will help me achieve my goals
61	I want my company to be the best in its field
62	I don't let my work interfere with my personal or family life
63	I make full use of the available financial resources to get the job done
64	I use logical and systematic approaches in my work
65	If an approach to a problem doesn't work, I consider a different approach
66	I stand by my decisions even if others strongly disagree with them
67	I tell people what they should do even if they don't want to do it
68	I can't convince people with strong opinions to change their minds
69	I know people who can help me achieve my goals
70	When I don't know something, I don't mind admitting it

Note. Mansfield et al. (1987, adapted).

The questionnaire is based on the respondent's reaction to the situation presented in Table 2. This reaction is quantified using the Likert scale, with the criteria listed in Table 3:

Table 3.
Criteria for answering the questions

Value	Criteria
1	Never
2	Almost never
3	Sometimes
4	Almost always
5	Always

Note. Prepared by the authors.

Following the methodology of the study (Mansfield et al., 1987), the responses are grouped according to the competency being assessed and then totaled based on the value assigned to each criterion. The 70 situations presented in Table 2 are breakdowns of the 13 entrepreneurial competencies described in Table 1, and each competency is represented by a set of five situations, distributed throughout the questionnaire as shown in Table 4.

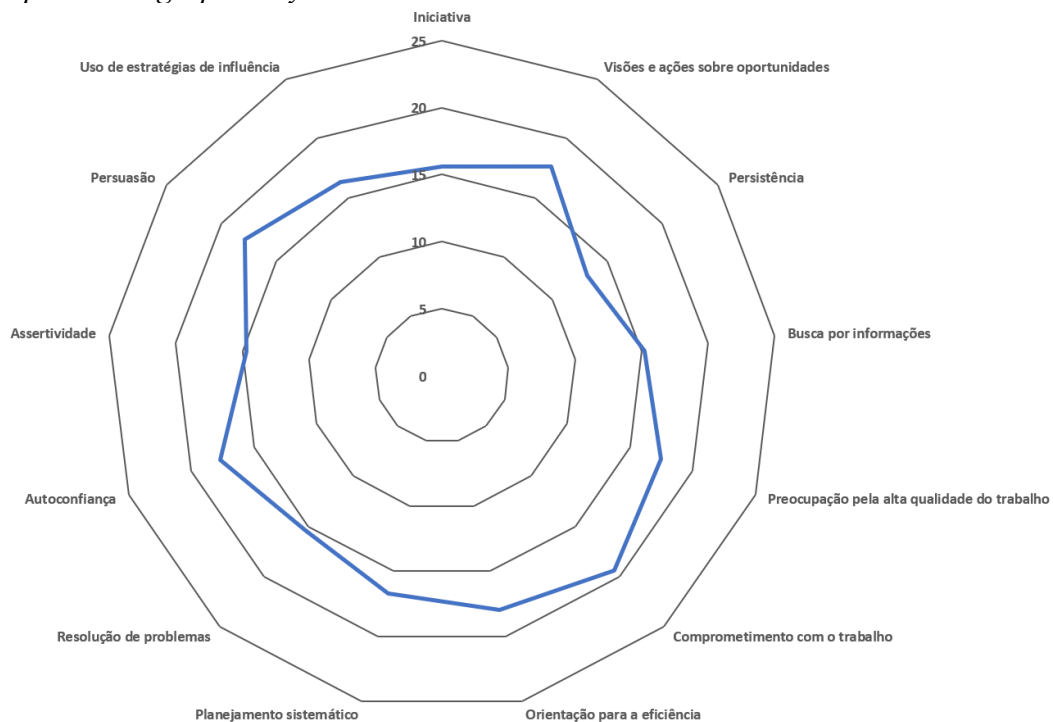
Table 4.
Expected situations for each competency

Competency	Situations
Initiative	1, 15, 29, 43, 57
Insights and actions regarding opportunities	2, 16, 30, 44, 58
Persistence	3, 17, 31, 45, 59
Seeking information	4, 18, 32, 46, 60
Commitment to high-quality work	5, 19, 33, 47, 61
Dedication to work	6, 20, 34, 48, 62
Focus on efficiency	7, 21, 35, 49, 63
Systematic planning	8, 22, 36, 50, 64
Problem-solving	9, 23, 37, 51, 65
Self-confidence	10, 24, 38, 52, 66
Assertiveness	11, 25, 39, 53, 67
Persuasion	12, 26, 40, 54, 68
Use of influence strategies	13, 27, 41, 55, 69

Note. Mansfield et al. (1987, adapted).

Among the situations presented in Table 2, there is a set of five situations (14, 28, 42, 56, and 70) intended to correct—that is, to address possible attempts to present an overly favorable personal image. Once compiled, the results can be presented graphically, as shown in Figure 1.

Figure 1.
Results presented graphically



Note. Prepared by the authors.

The partner school in this study is a technical high school located in the northeastern region of the state of São Paulo; it voluntarily facilitated its students' participation in this experiment, with the appropriate consent form from the educational institution for administering the questionnaire.

This study was aligned with the guidelines and objectives set forth in the school's Political-Pedagogical Project (PPP), particularly those related to the holistic education of students, youth empowerment, the development of autonomy, planning skills, problem-solving, creativity, leadership, and preparation for contemporary academic, professional, and social challenges.

The administration of the questionnaires was part of an institutional pedagogical intervention linked to the Life Project and Entrepreneurship courses, serving as a tool for monitoring and evaluating the educational initiatives developed by the school within the scope of these curricular components.

This project was aligned with the guidelines of the National Common Core Curriculum (BNCC), particularly General Competencies 5, 6, and 10, which aim to foster student agency, initiative, autonomy, responsibility, and the development of students' life plans (Brasil, 2018).

In this regard, the pedagogical intervention developed in the Life Project and Entrepreneurship courses sought to promote formative experiences that contribute to an understanding of the world of work, to informed decision-making, and to the development of entrepreneurial competencies consistent with the holistic education outlined in the school's Political-Pedagogical Project.

The institution stated that it was aware that:

1. The questionnaires served educational and academic purposes, contributing to the monitoring of students' entrepreneurial skills and to the improvement of the school's educational practices;
2. The data collected could be used for pedagogical analyses, institutional reports, academic papers, scientific research, and technical publications, while ensuring the anonymity of the participants;
3. The results would be presented in aggregate form without identifying individual students, in accordance with applicable ethical principles and current legislation regarding the protection of personal data;

4. Student participation would take place during regular school activities, within the context of pedagogical initiatives linked to the project.

The study population consisted of 177 participants, including 66 (sixty-six) first-year students, 50 (fifty) second-year students, and 61 (sixty-one) third-year students, as shown in Table 5.

Table 5.
Distribution of participants

Students	Sample	Percentage
1st year	66	37.29%
2nd year	50	28.25%
3rd year	61	34.46%
Total	177	100%

Note. Prepared by the authors.

Responses were collected via an online form (Google Forms) on school premises and under the supervision of the school's teaching staff. While the students were completing the questionnaire, there was no communication or interference from the authors or the teaching staff. The questionnaire itself provided sufficient instructions for proper completion.

Students were initially briefed via an explanatory video recorded by the authors of this study. Next, grouped according to the semester in which they were enrolled, they received a specific link to access the questionnaire, which was administered by the school and had restrictions regarding the completion date and time. The system was also configured to accept only one response per student.

After the completion deadline passed, a spreadsheet (Excel) was generated for each of the three semesters (1st, 2nd, and 3rd). Each student, identified solely by the email address provided when completing the questionnaire, received their radar chart showing their score and the competencies assessed. Then, on a previously scheduled date, all students gathered at the school and attended a presentation by the authors to receive a more detailed explanation of the results.

The school, in turn, received radar charts showing the average scores for each term, as well as an overlay of the averages for all three terms on a single chart.

RESULTS AND DISCUSSION

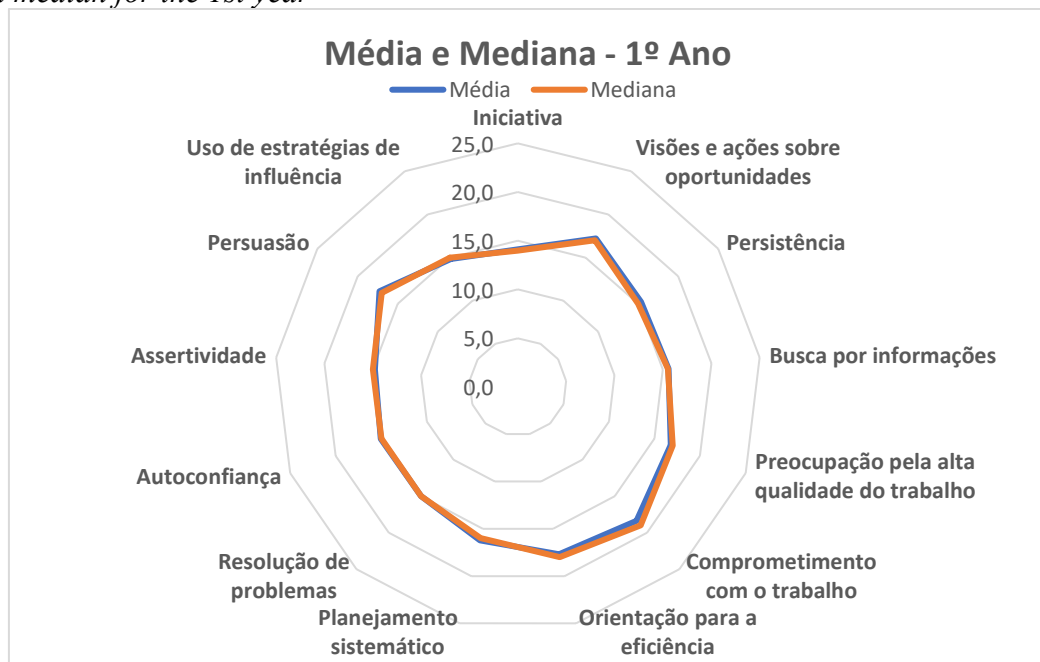
The main outcome of this study was to outline a methodology adapted from the cited sources to enable the replication of an instrument for assessing entrepreneurial intent, including elements to guide coordinators in managing the variables and situations that the school may address in accordance with the Political-Pedagogical Project.

The educational institution also considers the measurement of entrepreneurial intent as a factor in minimizing school dropout rates (Aranha et al., 2026).

The results also allowed the educational institution to compare the evolution of students' competencies throughout their academic progression. With these results, the institution can effectively guide students in developing their competencies in accordance with its educational project and pedagogical practices.

Figures 2 through 4 show the means and medians of entrepreneurial behavior among students from the first to the third year of high school.

Figure 2.
Mean and median for the 1st year



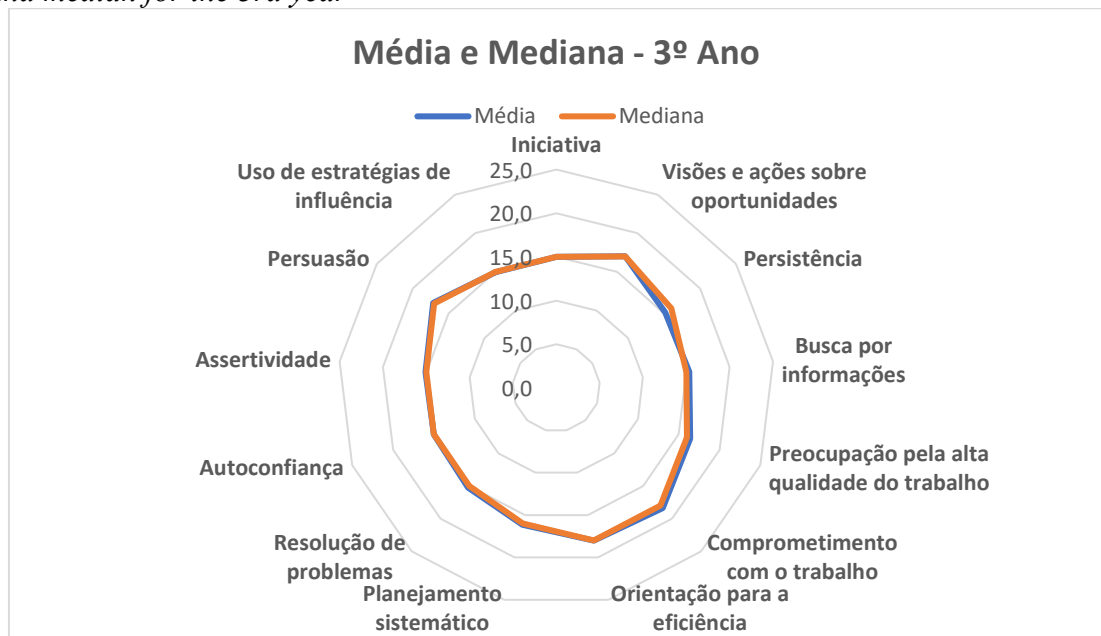
Note. Prepared by the authors.

Figure 3.
Mean and median for the 2nd year



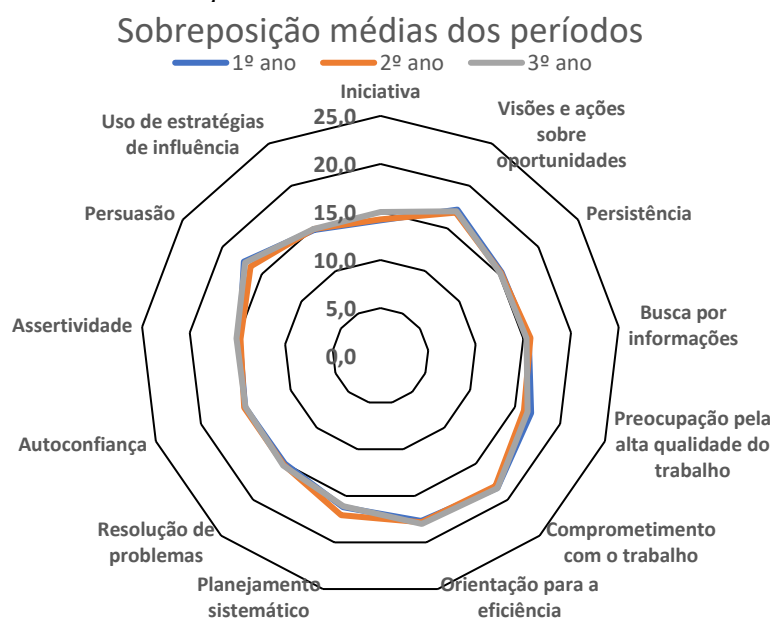
Note. Prepared by the authors.

Figure 4.
Mean and median for the 3rd year



Note. Prepared by the authors.

A similarity between the mean and the median is observed for the assessed items across all periods, indicating low dispersion of the results. Figure 5 shows the overlap of the students' means across the three periods.

Figure 5.*Overlap of the means across the three periods**Note.* Prepared by the authors.

Based on Figure 5, the overlaps in the averages for the academic periods (1st, 2nd, and 3rd years) do not show any progression as students advance through high school. This phenomenon can be explained by the fact that entrepreneurial competencies are not developed solely through theory but require what is known as ‘experiential learning,’ as described by Lackéus (2015) and Kolb (1984). According to these authors, individuals must go through cycles of practical experiences, reflective observations, and active experimentation to develop certain competencies.

According to the discussion by Engidaw (2021) and Munir et al. (2021), as discussed above, students’ entrepreneurial behavior results from intrinsic factors and their social context, understood as extrinsic factors. The combination of multiple heterogeneous factors ultimately influences individuals’ profiles and behaviors (Ohanu & Shodipe, 2021).

Intrinsic factors, as previously discussed, include individuals’ entrepreneurial attitudes and experiences (Hou et al., 2019). Other, extrinsic factors stem from the school ecosystem, which influences students’ intentions and behaviors (Casagrande & Brusco, 2023; Bayar et al., 2022).

In empirical terms, the evidence of similarity in students’ behavioral responses, represented as outcomes, can be summarized by the following factors: the coordinator’s work

is carried out by the same person, who serves all three grade levels, guided by an organizational protocol aimed at achieving results in terms of college entrance exam success. This guidance is also infused with incentives for entrepreneurship, according to the technical high school's own Political-Pedagogical Project. Such incentives are explained in the literature by Dong et al. (2019) and González-Serrano et al. (2021).

According to Brusco and Casagrande (2024), there is a homogeneity of socioeconomic conditions and expectations regarding the future among the students at the technical school that is the subject of this study. This homogeneity may be further accentuated by the process of joint recreation during class breaks, where a single behavioral pattern is encouraged, driven by the more advanced grades (3rd year).

Although the technical school in question encourages students to engage with the topic of 'entrepreneurship' through a theoretical course, lectures, and workshops (Brusco & Cavalcante, 2024), it does not include practical activities, hands-on experiences, or active experimentation in its educational curricula to foster the development of entrepreneurial skills. To change this situation, the educational institution could incorporate practical activities, hands-on experiences, and active experimentation into course curricula or through training pathways, as suggested by Brusco and Cavalcante (2024), in order to foster attitudes that generate intentions, ultimately leading to more developed entrepreneurial behaviors.

Tables 6 through 8 present the minimum, maximum, and standard deviation values of the results found in each period. Recurring observation of these statistics helps program coordinators assess the heterogeneity of behaviors and enables faculty to better understand the most effective ways to work with individual students.

Table 6.
Descriptive statistics for 1st year students

Behavior	Minimum	Maximum	Standard deviation
Initiative	8	22	2.55
Perspectives and actions regarding opportunities	10	22	2.08
Persistence	9	22	2.38
Seeking information	9	20	2.04
Commitment to high-quality work	10	21	2.09
Dedication to work	12	25	3.21
Focus on efficiency	12	24	2.32
Systematic planning	8	21	2.44
Problem-solving	7	20	2.29
Self-confidence	9	21	2.57

Assertiveness	9	21	2.61
Persuasion	12	24	2.28
Use of influence strategies	9	19	2.05

Note. Prepared by the authors.

Table 7.

Descriptive statistics for 2nd year students

Behavior	Minimum	Maximum	Standard deviation
Initiative	9	19	2.22
Perspectives and actions regarding opportunities	13	19	1.62
Persistence	9	20	2.08
Seeking information	12	19	1.82
Commitment to high-quality work	10	21	2.21
Dedication to work	13	22	2.01
Focus on efficiency	13	22	2.35
Systematic planning	13	22	2.09
Problem-solving	10	24	2.70
Self-confidence	9	19	2.50
Assertiveness	9	21	2.55
Persuasion	12	24	2,67
Use of influence strategies	11	18	1,87

Note. Prepared by the authors.

Table 8.

Descriptive statistics for 3rd year students

Behavior	Minimum	Maximum	Standard deviation
Initiative	9	21	2.57
Perspectives and actions regarding opportunities	13	25	2.00
Persistence	8	18	2.18
Seeking information	11	20	2.01
Commitment to high-quality work	12	21	1.86
Dedication to work	12	23	2.41
Focus on efficiency	9	23	2.64
Systematic planning	5	21	2.71
Problem-solving	10	21	2.18
Self-confidence	9	24	2.94
Assertiveness	5	21	2.87
Persuasion	9	23	2.80
Use of influence strategies	9	21	2.22

Note. Prepared by the authors.

The contributions of Minello et al. (2017) employ the same methodology used in this study. The statistical tools used by the authors serve to explore the results of the correlation between entrepreneurial behaviors and the significance of the data found.

Unlike the complex statistical analysis conducted by the authors mentioned above, this study sought to support the actions of educational institution coordinators in their work with students. To this end, a procedure was structured using graphical representations to inform these actions in the improvement of their educational policies and programs focused on entrepreneurship.

This method of presenting the results—whose methodology and theoretical foundation are similar to the study by Kowang et al. (2021), conducted with students in Malaysia—allows coordinators and faculty members with diverse higher education backgrounds, as well as students, to understand the generated data with a high degree of symmetry. Thus, the present methodology highlights the symmetry in data interpretation and the transparency of the tool as a key strength of its contribution.

MANAGEMENT CONTRIBUTIONS TO STRATEGIC DECISION-MAKING

The organization of this study was based on the following research question: How can we assess the development of entrepreneurial behavior among students in secondary and higher education institutions?

Assuming that the educational institution has, as part of its pedagogical and policy framework, the specific objective of fostering the development of entrepreneurship and entrepreneurial behavior, the tool developed here allows for the monitoring of attitudes based on statistical concepts. The results generated by applying the tool provide insights for changes in three dimensions:

- 1) At the institutional level, the results make it possible to assess whether the political-pedagogical program encompasses all 13 behaviors associated with entrepreneurship and establishes a benchmark for innovation within the educational institution.
- 2) At the pedagogical level in the classroom, the results make it possible to identify new proposals and adaptations to learning processes, in accordance with the educational institution's theoretical framework. These new experiences can be measured using the

tool and provide evidence of mastery for coordinators, teachers, and students at these institutions.

- 3) At the social level, the results make it possible to provide individualized guidance to students, if desired, regarding their entrepreneurial intentions and entry into the job market.

It should be noted that this methodology is an adaptation of the one presented by McClelland (1987) and Mansfield et al. (1987) and is used internationally to assess entrepreneurial competencies. Thus, further adaptations can be made to address the specific needs of educational institutions.

This study demonstrates that the methodology is easy to apply and is suitable for educational institutions that have academic programs and practices designed to help students develop their entrepreneurial behavioral competencies.

This study also provided students with an empirical understanding of their own behavior. Consequently, the results can help institutional administrators reflect on the scope of their Educational Policy and Pedagogical Project, based on the difficulties or shortcomings identified through the application of the tool.

These competencies, which are regularly assessed by international organizations and development agencies, provide a benchmark for the educational institution, which can use the training content it offers to analyze the results obtained.

Regarding the roadmap, it is important for the educational institution to first assess the behavioral attributes identified here. The results can be interpreted qualitatively in light of the aspirations, objectives, and means the institution uses to achieve its educational goals.

After the pedagogical team evaluates the results, adjustments and corrections can be made based on social-emotional learning courses, pedagogical support, and other structured resources available at the educational institution so that the observed behavioral outcomes can be expanded toward the edges of Figure 2 (Casagrande & Brusco, 2023).

These correlations are specific targets for the educational perspective and for the political-pedagogical project itself. At the very least, these results can serve as a working hypothesis, which—following an assessment of its relevance by the coordination team—will be included as a reference for improvements to the Political-Pedagogical Project.

It is also noted that the development of entrepreneurial competencies, mindset, and culture in students is one of the goals of modern education (Delpozzo & Szpunar, 2022; Divac

et al., 2022). Furthermore, the National Common Core Curriculum, in line with the importance of entrepreneurship as a driver of socioeconomic development, states that schools must “foster a culture conducive to the development of attitudes, skills, and values that promote entrepreneurship” (Brasil, 2018). In this sense, this study contributes to the fulfillment of the educational institution’s established objectives. The scope of this instrument for assessing entrepreneurial intent can be expanded through the educational institution’s own efforts to foster practices that consolidate experiences and learning opportunities that go beyond the topic of entrepreneurship.

Entrepreneurs are notably recognized for their focus on innovative practices, their ability to identify opportunities, their goal-setting, their planning, and their commitment to quality, among other traits (Chen et al., 2018; Zampier & Takahashi, 2011). Educational institutions have increasingly incorporated entrepreneurship into their curricula as they recognize the competitive advantage gained not only through the development of their students’ skills and attitudes but also through a tangible contribution to the socioeconomic development of their communities (Perim, 2015).

FINAL CONSIDERATIONS

The critical evaluation conducted throughout this study identifies six attributes of the instrument presented here.

- 1) It objectively contributes to the knowledge and understanding of the behavioral characteristics that define entrepreneurial intent, without replacing the essence of subjective issues related to learning.
- 2) It illustrates how to use tools to measure behaviors relevant to entrepreneurial intent and aligned with academic objectives.
- 3) It provides results that reduce interpretive discrepancies among coordinators, faculty, and students regarding topics related to occupational activity, student profiles, and students’ propensities regarding future educational and career choices.
- 4) It interacts with the improvement and planning tools used by educational institutions and students.
- 5) It brings the school up to date on the language of entrepreneurship ecosystems present in universities and other for-profit and nonprofit organizations.

- 6) It strengthens the school's mission in the socioeconomic development of its surrounding community.

In this paper, the steps that led to an understanding of the benefits generated by the tool included, first, a contextual overview of the labor market with regard to changes in its institutional regulatory frameworks. Second, a set of bibliographic references related to entrepreneurship education was compiled, focusing on Mansfield's (1987) methodology. Third, a replicable tool was developed for educational institutions. Finally, illustrations were created as a mechanism for pedagogical support and rapid social interaction.

In conclusion, it is understood that regulatory frameworks and/or changes in the labor market are contexts that evolve, but the attributes that enable individuals to integrate into a context that better aligns with the prevailing situation can always be improved, based on the results observed from applying the tool to new students entering educational institutions.

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CRedit Author Statement

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 - ☐ **Funding:** Sincomércio de Araraquara.
 - ☐ **Conflicts of interest:** No conflicts of interest were identified.
 - ☐ **Ethical approval:** In accordance with Resolution No. 510, dated April 7, 2016, the questionnaire was administered via Google Forms through a link that allowed respondents to complete it anonymously. The respondent's email address was used to identify them for the return of individual results. Individual results were not stored or analyzed. Only the aggregate results for all respondents were presented graphically. The questionnaire forms the basis for SEBRAE's implementation of its Empretec course. There was no interaction between the interviewer and the respondent. Explanations regarding the questionnaire were provided in person to students in the classroom. Responses were completed in the classroom under the supervision of the school coordinator. The questionnaire, which was developed as part of postdoctoral research, was taken to the participating school and presented to the school administration, program coordinators, and the course instructor.
 - ☐ **Data and materials availability:** The materials used in this study are available for access, specifically the graphic materials from the group responses, the questionnaire, and the data on the school and the grades surveyed—in this case, the first through third years of high school.
 - ☐ **Authors' contributions:** E. E. C.: conceptualization of the study based on the research question and general objective; discussion of the methodological framework and comparisons with relevant literature; analysis of the results and support based on two monographs supervised in 2025 and 2026, respectively, both from the undergraduate program in Economic Sciences, on the topic of entrepreneurship. The process as a whole was carried out through successive revisions, via synchronous meetings over the past seven months, once the postdoctoral research was completed. M. C. O. A.: theoretical research and development of the diagnostic tool used; analysis of the data obtained and comparison of these with the relevant literature, in order to establish the tool's feasibility and relevance in the academic context. The entire research and tool development process was based on previously conducted postdoctoral research. As also reported by the other author, the process as a whole was carried out with successive revisions through synchronous meetings over the past seven months, once the postdoctoral research was completed.
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