

Review

# Towards a Global Entrepreneurial Culture: A Systematic Review of the Effectiveness of Entrepreneurship Education Programs

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**Abstract:** The number of entrepreneurship education programs (EEP) has increased exponentially over the past two decades. However, a systematic review has not yet been carried out to confirm the effectiveness of EEPs and their presence in the current global world. The main objective of this study was to provide a systematic synthesis of EEP, exploring their characteristics and effectiveness. The search was carried out in the following databases: Scopus, Web of Science, ProQuest, and ERIC. Twenty-nine articles were included, with programs developed mainly in European ( $n = 15$ ), Asian ( $n = 6$ ), and American ( $n = 5$ ) countries. The programs were primarily aimed at higher education students ( $n = 17$ ), addressing business plans and the development of entrepreneurial skills. However, greater attention is paid to entrepreneurial skills in both primary and secondary education. The development of the programs under analysis varied between one week and two years. The studies showed the effectiveness of most of these programs in promoting entrepreneurial skills at all levels of education. In turn, there was no verified increase in the intention to start a business since this intention is determined by predisposition, namely socio-cultural and family aspects. This systematic review of the EEP points to the need for this type of program to be preferentially developed in the early school years, since it is at that time that predispositions are created for the development of entrepreneurial skills and intentions. This condition is corroborated by the global geography of the EEP, which demonstrates that, where there is currently an entrepreneurial culture, countries have made a long educational journey, with strategic options from the perspective of educational policies defending entrepreneurship among the younger generations.

**Keywords:** entrepreneurial programs; pedagogical interventions; educational interventions; entrepreneurship education; entrepreneurial culture; effectiveness; globalization



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## 1. Introduction

Entrepreneurship education (EE) is par excellence a field for advancing and developing societies, a trigger for economic growth, social cohesion, organizational success, and personal fulfillment [1–5]. For this reason, over the past two decades, entrepreneurship education programs (EEP) have increased exponentially on all continents [6–15]. This educational phenomenon originated at Harvard Business School, where the first entrepreneurship course, called Management of New Enterprises, was offered by Myles Mace in 1947; a year later, a research center in this field was created, the Research Centre in Entrepreneurial History [16,17]. However, courses began to appear at various universities in the USA, and in 1967, the first MBAs on entrepreneurship were held at Stanford University and New York University [18]. In the following year, 1968, Babson College offered the first degree in entrepreneurship [16].

This phenomenon has been spreading worldwide, given its relevance in the solutions to emerging problems. However, if the focus was initially on the creation and management of companies, in recent decades, the focus has also opened up to entrepreneurial skills, attitudes, and behaviors [19–21]. Education towards entrepreneurship began to take an approach that makes it possible to cover students from all higher education courses and all levels of education who need to develop these skills. Therefore, entrepreneurial programs have been developed and implemented on all continents as a way of preparing and enabling them to face professional challenges, to create their jobs, to create original and valuable solutions to various emerging social and economic problems, such as the environment, poverty, social exclusion, and sustainability. Moreover, entrepreneurship education assumed the objective of promoting an entrepreneurial culture, having the competencies mentioned above as a frame of reference [22–24].

With this objective, interest in educational actions in the form of intervention programs has grown, consisting in intentional and systematic actions, resulting from the identification of the needs of a population, directed to specific objectives, based on theoretical models, and suggesting activities and pedagogical resources for their execution and evaluation, as defined by Jardim [25]. Consequently, studies on these interventions have been carried out on all continents, with the most diverse recipients, such as students in higher education [26,27], primary school [28–32], and secondary education [33–35], as well as the most diverse contexts outside the school, such as municipal [36,37], agricultural [38], and retirement [39]. These references show that the actions of education towards entrepreneurship have multiplied around the world in recent years, which demonstrates the need for entrepreneurial skills. A paradigmatic example is that of EEP in Hong Kong secondary schools, presented by Cheung [9], who concluded that 70% of schools apply EEP for more than three years; that in most programs (48%), the activities are carried out over one or more school years; and that several teaching approaches are adopted, predominantly workshops (46%), competitions, case studies, and mentoring. However, 75% of schools also use traditional teaching methods.

Thus, the good results achieved through the EEP come from the programs' conceptions, namely the leveled objectives, the competencies, the connection with the socio-economic context, the profile of the program facilitator, and the activities carried out, as has been demonstrated in the literature [10,15,29,40–43]. According to Jardim [25], there are three dimensions to be taken into account when designing an intervention program: the identity of the program (name of the program, characterization of the recipients and their socio-educational context, objectives, content, skills, and theoretical foundation), pedagogical options (activities, resources, number of sessions, total duration, and facilitators), and evaluation (research design, sample definition, assessment tools, results, and implications for subsequent interventions).

One of the constituent elements of the EEP is entrepreneurial skills (ES), which enable students to face the challenges of the current labor market, such as the sense of initiative, problem-solving, innovation, creativity, and teamwork. For this reason, several approaches and models of ES have emerged [44–52]. These skills have been progressively included in school curricula, and interventions have been carried out to promote them at all ages. Thus, it is possible to disseminate an entrepreneurial culture for all such that the economy and the market include not only those who were born in a family and socio-economic context favorable to entrepreneurship, but also those who, through learning and training, acquire the skills, competences, values, emotions, and tools of this culture [4].

The development of the elements of entrepreneurial culture requires creating an educational environment favorable to the creation of value propositions, unique socio-professional projects, useful products, and innovative services [53]. This teaching–learning process implies the use of a set of specific pedagogical strategies. They can be educational games, biographies of entrepreneurs, group dynamics, or business models and can be in digital or printed format, virtual or in-person, individual or in a group. As an example, we can observe some of these teaching–learning processes in Europe [53,54] and around the

world [14,55]. Moreover, there is a wide variety of procedures and resources representing evidence of the diversity of proposals according to economic, cultural, and social contexts [4]. Considering this diversity of approaches, a model composed of twelve strategies distributed over four objective domains was presented: tools to develop ideas, which are intended to be original, practical, and profitable; tools for the validation and dissemination of projects; tools to communicate effectively and quickly with customers; and tools to provide sustainability to organizations.

Thus, there was a clear need to design and implement EEP, aiming at promoting entrepreneurial skills, to disseminate an entrepreneurial culture in current society that requires creativity and innovation from all professionals in solving emerging problems. Moreover, multiple studies on entrepreneurship education have been carried out. However, regarding EEP, a review that describes and evaluates its effectiveness has not yet been carried out. For this reason, a systematic review approach was used to comprehensively review the available EEPs and explore their effectiveness in promoting ES. This study includes a summary of the methodologies used in the review, a description of the available EEPs, and a general discussion of the main findings, limitations, and implications for the practice.

## 2. Method

This systematic review was conducted following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 guidelines [56].

### 2.1. Search Strategy and Eligibility Criteria

A systematic search of the published literature was performed using four databases: Scopus, Web of Science, ProQuest, and ERIC. The keywords used were “entrepreneurial education program”, “pedagogical interventions”, “educational interventions”, and “entrepreneurship education”. The OR and AND functions were also used to combine the key terms. The searches were carried out in January 2021 and were complemented by a manual search of the reference lists of the included studies.

Studies were eligible for inclusion in the systematic review if they met the following criteria: (i) written in English, Spanish, or French; (ii) published between 2000 and 2020; and (iii) develop and evaluate EEP. No reviews or meta-analyses, conference abstracts, comments, dissertations, or editorials were included in this study.

### 2.2. Process of Data Extraction and Synthesis

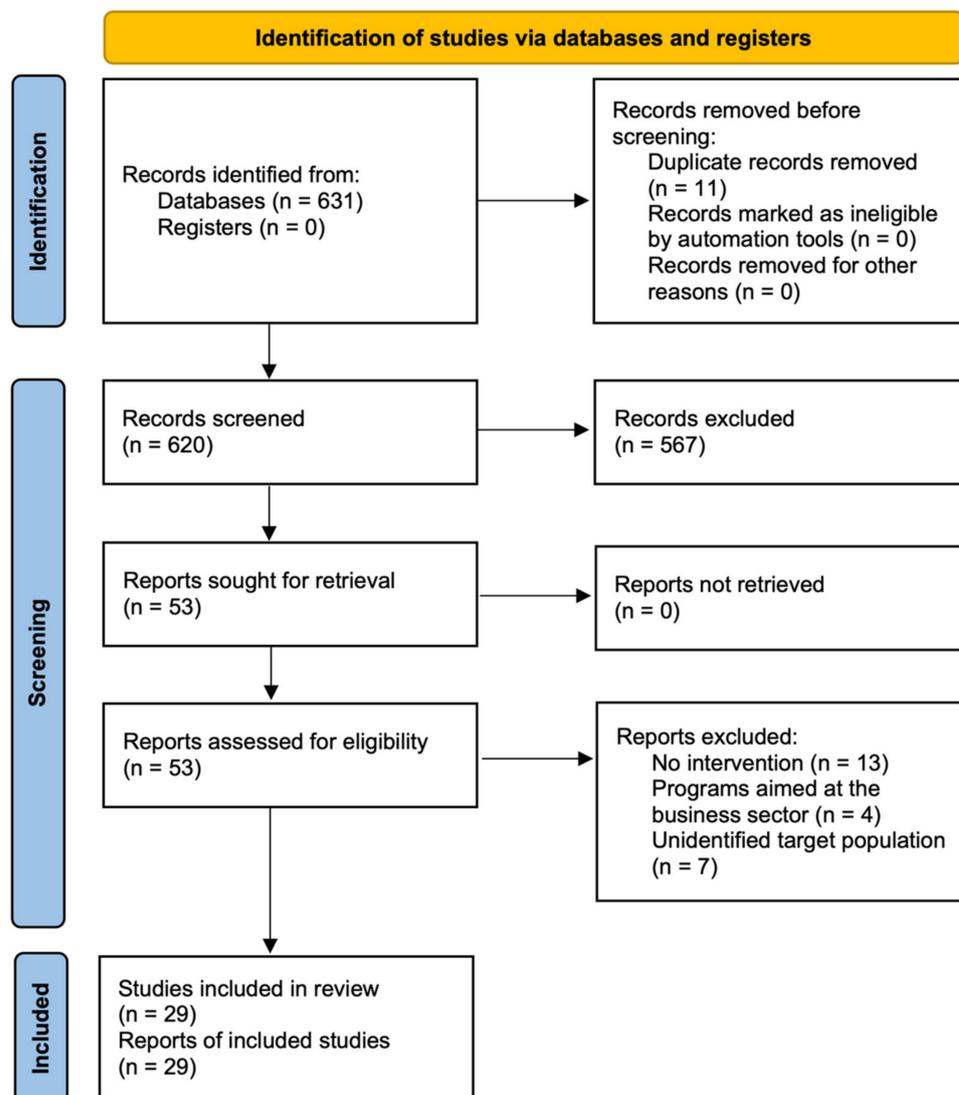
The survey identified potential eligible entries. After removing duplicate records, the titles and abstracts were independently screened by two co-authors. Based on this process, a list of studies for “full-text examination” was produced. Entries that did not meet the inclusion requirements were excluded, namely, those that did not identify a program and/or whose focus was not entrepreneurship. All questions were discussed and resolved through discussion with a third reviewer. For each selected study, information was collected within the following categories: research design, sample size, duration of intervention, providers, conceptual framework, assessment tools, pedagogical activities and resources, and main results. A narrative synthesis of the studies included in this review was carried out due to the heterogeneity of data related to the design, type of program, measures used to evaluate the results, and impact.

### 2.3. Critical Appraisal

The included studies were critically assessed by the review team. The assessment was carried out using the Joanna Briggs Institute (JBI) Statistics Assessment and Review Instruments critical appraisal checklists [57–59] for quasi-experimental studies, case reports, case-control studies, and qualitative studies. Only articles in which more than 50% of the JBI criteria were met were included in the review, following the procedure by Bártolo et al. [60]. It should also be noted that the disagreements between the review team members in the evaluations were resolved by discussion.

### 3. Results

The study selection process is represented in the flowchart of Figure 1. As indicated, 631 studies were identified through database research. After removing 11 duplicate records, 620 studies were analyzed based on the title and summary, but 567 did not meet the eligibility criteria. The full text was retrieved for 53 studies, of which 24 were excluded. Among the deleted records, some studies addressed the theme of entrepreneurship but did not describe a program and its evaluation. Thus, 29 studies published between 2003 and 2020 were included in the review.



**Figure 1.** Flowchart with the description of the study selection process for inclusion in the systematic review [56,61].

#### 3.1. Characterization of the Studies

The 29 studies included are from six continents and are distributed in 22 countries, three from the USA and two from France, two from South Korea, two from Portugal, two from Spain, and two from Taiwan; the remaining studies come from 16 countries, including Germany, Australia, Austria, Botswana, Canada, Chile, Slovenia, Finland, Ghana, The Netherlands, Italy, Malaysia, Norway, the United Kingdom, Romania, and Singapore. Most of the programs were envisioned for participants from a single country; however, one of them took place in a partnership between Italy, Germany, and Slovenia, as shown in Table 1.

**Table 1.** General characterization of the programs.

Author, Year	Country	Sample	Research Design	Program Name	Recipients	Outcomes	Male	Female	Ages	Total Training Hours	Program Facilitator	Conceptual Framework	Assessment Tools
Backs et al., 2019 [62]	Germany	43	Qualitative design	Practice in Entrepreneurship	Higher Education	Entrepreneurial skills	25	18	18–25	6 months—36 h	Teachers and entrepreneurs	Collaborative learning	Interviews
Bernal Guerrero et al., 2017 [63]	Spain	52	Mixed method study design	Emprender en mi Escuela + Empresa Joven Europea + ÍCARO	Primary and middle education	Entrepreneurial skills	26	26	10–12, 14–16	9 months—36 h	Teachers	Social learning theory	Questionnaire
Bisanz et al., 2020 [64]	Austria	139	Qualitative design	Empowering Each Child	Primary education	Self-confidence, spirit of initiative, innovation, creativity, mindfulness, empathy, self-motivation, and participation in society	-	-	25–60	During the field trial, a two-year in-service training, consisting of 3 training courses per year	Teachers	-	Interviews and questionnaires.
Boldureanu et al., 2020 [65]	Romania	30	Mixed method study design	Business Creation	Higher Education	Entrepreneurial skills	9	21	22–46	6 months—36 h	Teachers	Learning by doing	Focus group
Dominguinhos & Carvalho, 2009 [66]	Portugal	22	Case study	Projeto Começar	Professionals	Business and entrepreneurial skills	11	11	25–29	924 h (6 months)	Academic tutor in higher education institution and business tutor	“Adaptive” learning	Questionnaire
Fayolle & Gailly, 2009 [67]	France	158	Quasi-experimental design	Programme d’Enseignement en Entrepreneuriat	Higher Education	Entrepreneurial behavior	-	-	23 more	24 h	Teachers	Solution-based coaching	Interviews and questionnaire
Hebles et al., 2019 [68]	Chile	38	Qualitative design	Programa de Educación en Emprendimiento e Innovación	Higher Education	Entrepreneurial skills and behavior	19	19	18–25	9 months—36 h	Teachers	Self-efficacy theory	Focus group
Heinonen et al., 2007 [69]	Finland	34	Case study	Entrepreneurship Programme	Higher Education	Entrepreneurial and business skills, knowledge, attitudes, and experience	-	-	18–25	9 months—36 h	Teachers	Theory of planned behavior	Focus group

Table 1. Cont.

Author, Year	Country	Sample	Research Design	Program Name	Recipients	Outcomes	Male	Female	Ages	Total Training Hours	Program Facilitator	Conceptual Framework	Assessment Tools
Kerrick et al., 2016 [70]	USA	121	Pre-post study	Launch It	Professionals	Networking, entrepreneurship concepts, definition of target markets, market research, concept prototyping, financial markets, and intellectual property	87	34	50–70	10 weeks—30 h	trainer and experts in the community (lawyers, etc.)	Social entrepreneurship education model	Diaries; accountability documents; group interview
Kim et al., 2020 [71]	Korea	1934	Quasi-experimental design	KAIST Social Entrepreneurship MBA Program	Secondary education	Social entrepreneurial skills	-	-	30–60	2 years	Teachers	Theory of entrepreneurial ecosystem	Survey
Kim et al., 2020 [72]	Korea	106	Case study	Entship School + Hero School	Higher Education	Entrepreneurial, business, and self-efficacy skills	957	977	12–20	Entship School—12 h Hero School—20 h	Teachers	Development of a business model	Semi-structured interviews and questionnaires
Klapper, 2005 [73]	France	83	Qualitative design	Project Entreprendre	Higher Education	Teamwork, business plan, interactivity, self-confidence, credibility, balance between formal, and informal.	-	-	19–21	5 months	Teachers, consultants	Theory of planned behavior	Questionnaires
Kubberød et al., 2017 [74]	Norway	24	Qualitative design	The Norwegian School of Entrepreneurship	Higher Education	Entrepreneurial, business, and self-efficacy skills	-	-	23	3 months—48 h	Teachers	Develop local economies	Assessment report and interviews
Lekoko et al., 2012 [75]	Botswana	325	Case study	Entrepreneurship Education	Higher Education	Awareness that entrepreneurship education in Botswana does not develop entrepreneurial skills, which makes it impossible to pursue a career in the field of entrepreneurship	-	-	18–25	-	Teachers	Social entrepreneurship education model Ukids	Questionnaires
Lyons et al., 2018 [76]	USA	335	Qualitative design	Next 36	Secondary education	Increased likelihood of working or founding a startup	0	335	18–25	1 year	Teachers, entrepreneurs, funders	Theory of planned behavior	Questionnaires

Table 1. Cont.

Author, Year	Country	Sample	Research Design	Program Name	Recipients	Outcomes	Male	Female	Ages	Total Training Hours	Program Facilitator	Conceptual Framework	Assessment Tools
Mohamed et al., 2012 [77]	Malaysia	410	Qualitative design	Basic Student Entrepreneurship Program	Higher Education	Skills to take advantage of business opportunities, marketing, entrepreneurial simulations, and analysis of the characteristics of successful entrepreneurs	-	-	18–40	6 months—36 h	Teachers	Skills development	Interviews and questionnaires
Pedrini et al., 2017 [78]	Ghana	30	Mixed method study design	E4impact MBA	Higher Education	Business plan, international network of partners and investors	25	5	27–49	12 months—24 h	Teachers	Active aging approach	Questionnaires
Pepin, 2018 [79]	Canada	19	Case study	School Shop Project	Primary education	Experience of what it means to be an entrepreneur	9	10	7–8	entire school year (from September to June)	Teachers	Skills development	Interviews
Peterman et al., 2003 [80]	Australia	236	Pre-post study	Young Achievement Australia	Secondary education	Perception of the benefits of starting a business; of the benefits of EE programs for training potential entrepreneurs as a professional career option	90	146	15–18	9 months—36 h	Teachers and volunteers	Theory of planned behavior and Role theory.	Questionnaires
Pinho et al., 2019 [81]	Portugal	24	Case study	UKids	Primary education	Valuation of individual capacities, such as creativity, self-confidence, the power of argument, as well as the construction of social skills, in interpersonal and group relationships; motivation to work on public causes in the logic of sustainable development, and openness to new concepts, such as creativity, respect for the environment, cooperation, communication of ideas.	24	24	8–10	entire school year	Teachers	Theory of planned behavior	Questionnaires

Table 1. Cont.

Author, Year	Country	Sample	Research Design	Program Name	Recipients	Outcomes	Male	Female	Ages	Total Training Hours	Program Facilitator	Conceptual Framework	Assessment Tools
Rigg et al., 2020 [82]	Netherlands	8	Pilot study	UKids	Professionals	Social entrepreneurial skills	-	-	18–25	7 months	Teachers	Practice-based wisdom theory and Entrepreneurial ecosystem	Interviews
San Tan et al., 2006 [83]	Singapore		Pilot study	Problem-Based Learning	Higher Education	Entrepreneurial skills	-	-	18–25	16 weeks in a semester—32 h	Facilitator	-	Interviews and questionnaires
Sánchez–García & Hernández–Sánchez, 2016 [84]	Spain	310	Quasi-experimental design	PREU	Higher Education	Self-efficacy, proactivity and risk, finance, marketing, management; skills such as self-efficacy, proactivity, and risk; interactive practice with entrepreneurs	177	133	19–22	8 months—28 h	Teachers	Problem-based learning	Focus group
Santini et al., 2020 [85]	Italy, Germany and Slovenia	41	Pre-post study	Be the Change	Professionals	Mentoring skills, for example, active listening and guidance, improving well-being and self-esteem, an attitude of social inclusion and active aging. Business and socio-relational skills, for example, benefiting from the full exploration of the mentors' know-how and their relationship and trust.	41	33	18–29/ 55–70	OAEs—16 h of training Mentees—20 sessions (40 h)	Mentors, technical experts in education	Constructivist model	Focus-group and Peer-evaluation
Smith et al., 2006 [86]	United Kingdom	16	Qualitative design	Discovering Entrepreneurship	Higher Education	Extroversion, taking risks, tolerance of ambiguity and novelty, independence, leadership, finding opportunities, creativity, and problem solving, contacts and social networks, interpersonal skills.	8	8	18–25	10 sessions—20 h	Teachers	Learning by doing	Focus group and follow-up interviews.

Table 1. Cont.

Author, Year	Country	Sample	Research Design	Program Name	Recipients	Outcomes	Male	Female	Ages	Total Training Hours	Program Facilitator	Conceptual Framework	Assessment Tools
Soundarajan et al., 2016 [87]	USA	98	Quasi-experimental design	Newpath	Higher Education	Entrepreneurial skills	-	-	18–25	3 weeks (campus and visit to Silicon Valley) + 12 weeks (internship in a company)—375 h = 15 weeks 5 h	Teachers + internship supervisors + local businessmen	Shapero's Model	Questionnaires
Ulvenblad et al., 2020 [88]	Sweden	109	Mixed method study design	Leader Practice + Lean Agriculture	Professionals	Self-leadership and team leadership, delegation of tasks, communication with employees and family, work routines, time management.	-	-	50 + 53 years—average		Trainers and Coaches	-	Questionnaires
Wu et al., 2018 [89]	Taiwan	21	Mixed method study design	PowToon	Higher Education	Perception that animated presentations attracted more investment; creating videos helped the team better present their business ideas to investors; whoever generates a business idea does not necessarily influence investor decisions.	25	20	23	EMBA—36 h	Teachers	Theory of planned behavior	Questionnaires and interviews
Wu et al., 2019 [90]	Taiwan	32	Qualitative design	MOOCs course	Higher Education	Social entrepreneurship courses with a mixed approach can be used effectively to help students achieve different levels of teaching objectives in the affective domain, which is a lengthy process, especially at higher education levels.	12	20	21–24	9-week course—18 h	Teachers	Approach constructivist-interpretive	Interviews and focus groups

Thus, this results in a global roadmap of the EEP geography in the current world, where all continents are represented.

Regarding design, the studies varied between qualitative studies (31%), case studies (21%), mixed studies (17%), quasi-experimental designs (14%), pre and post-test design (10%), and pilot study (7%).

The participants in the studies were aged between 7 and 70 years old, with about 48% being between 7 and 17 years old and about 52% being between 18 and 70 years old. In addition, it was found that 2% of the total participants attended primary school, 20% secondary education, 33% secondary education, 35% higher education, and 10% were professionals. Some studies did not show the differentiation between genders, and only 68% indicated it explicitly. Among the studies that reported gender, 45% of the participants in these studies were male and 55% were female.

The recipients of the programs of the 29 studies were distributed across all levels of education, highlighting higher education (59%), professionals with 21% of participants, 7% of secondary education, 7% of primary education, 3% of middle and primary education, and 3% of middle and secondary education.

In terms of duration, the programs reported in the different studies vary between 18 h [90], 24 h [67,78], 36 h [69], and 924 h [66], corresponding to courses taught between two months, a semester, a year, or two years.

These studies are focused on programs that specifically target the development of ES [62,63,65,66,87], the development of business plans and models [73,74,78,91], and the promotion of skills within the scope of social entrepreneurship and sustainability [64,81,82] in the scope of agriculture [77,88] and of technologies [63,87,90]. Some specific competences also stand out, such as teamwork [63,67,73,81,86,89], self-efficacy [64,70,72,74,78,84], leadership [86,88], self-confidence [64,73,81], proactivity and initiative [64,66,84], innovation [64,66,68,84], problem solving [66,72,86], empathy [64,81], self-esteem [85] and time management [88].

Most studies had teachers as the only facilitators of the programs (66%) ( $n = 19$ ), but in addition to teachers, some studies presented the collaboration of local entrepreneurs [76,87], volunteers [80], mentors and coaches [85,88], professional internships supervisors [87], and community specialists such as lawyers and military personnel [70].

The pedagogical activities presented in the studies were quite diverse, with emphasis on classes, lectures, workshops, business simulations, group dynamics and games, visits to companies, and internship experiences in incubators, simulating the early stages of a startup. However, it was found that in the early stage of education, there were activities such as the creation of a market in the school [79], storytelling and mindfulness [64], and educational games [82]. In turn, in secondary and higher education, activities were carried out to create, develop and implement an entrepreneurial project, using business models [73,78,80], marketing studies [71,77,80,84], and finance [70,80].

For the evaluation of the programs, the studies presented several instruments, highlighting interviews as focus groups and the questionnaires elaborated for the assessment of the effectiveness of the programs. However, specific questionnaires were used for each program, such as the ATE test [92], which measures students' entrepreneurial potential or attitude; EP Scale [93], which measures entrepreneurial passion; and the COE questionnaire (Entrepreneurial Orientation Questionnaire) [94].

The theoretical models on which the study interventions were based are very diverse, naturally combining these theoretical approaches with the pedagogical resources and techniques of entrepreneurial pedagogy. Among the theoretical models, we highlight those of the theory of planned behavior [95], the theory of social learning [96], of self-efficacy [97], of passion as a key to entrepreneurial action [93], of the entrepreneurial ecosystem [71], and collaborative learning [98].

### 3.2. Methodological Quality Assessment

Considering the four significant types of study (case reports, case control, quasi-experimental studies, and qualitative studies), we followed the JBI criteria. We evaluate the items of each of these four checklists, with the respective scale (No, Yes, Unclear, Not applicable). As such, it is concluded that all studies met the inclusion quality criteria. Regarding the case study and pilot study ( $n = 8/28\%$ ), on average, 73% of the criteria were met. It should be noted that the less clear items were those of demographic characteristics and the adverse effects of the intervention, which were not properly described. In qualitative studies ( $n = 9/31\%$ ), on average, 80% of the criteria were fully met. The item with the lowest score was the sample's representativeness. Furthermore, some of the studies do not report how the interviews were conducted. In quasi-experimental studies ( $n = 4/13\%$ ), the criteria were fully met at 80%, which explains the value of this type of study for interventions through skills development programs. In turn, in the mixed-method study design and pre-post study ( $n = 8/28\%$ ), the criteria were fully met at 66%, and among the remaining 26%, the criteria were not met and 8% did not apply. In addition, there was a lack of explanation of ethical issues in several articles.

### 3.3. Results of Interventions

The results achieved by the programs are varied, revealing the diversity of objectives, teaching methods, target groups, and contexts.

The quasi-experimental studies, mixed-method study design, and pre-post study [63,65,67,70,71,78,80,84,85,87–89] revealed consistent statistical results on the interventions' gains. There were global improvements between pre- and post-intervention. The qualitative designs [62,64,68,74,76,77,86,90,99], the case studies, and pilot studies also showed, through the data obtained in the interviews and focus groups, that there were improvements in the participants in terms of the acquisition of ES, which demonstrates that the evaluation of entrepreneurial skills training must be carried out not only through statistical analysis but also with content analysis and the triangulation of these types of analyses.

Gains can be grouped into three major thematic groups. The first group is related to entrepreneurial skills (69%) (e.g., NewPath [87], Standup [62], EME, EJE, and ÍCARO [63]). These skills are understood as the knowledge, attitudes, and skills that enable someone to be successful in the development of original and valuable projects, products, or services, having as a starting point the needs of a target population and as a result the fulfillment of functional, social, or emotional goals [47]. In turn, the second thematic group is associated with business management (38%) (e.g., Launch It [70], PREU [84], Project Start [66]). Business management refers more to the capabilities to maximize the potential of an organization so that the people and resources involved are effective in meeting the expectations of customers and employees. Finally, the third group is related to social entrepreneurship (10%) (e.g., UKids [82], Kaist [71], and MOOC [90]). Social entrepreneurship refers to the set of actions and processes carried out by citizens who create products, services, technologies, or entities with the primary objective of helping people. At the heart of its operation are community participation and the social responsibility model, motivated by the common good, social gain, and good living conditions. It should be noted that some of these studies deal with more than one thematic area, as shown in the following examples.

The Next 36 program (N36) demonstrates how participating in a program significantly increases the subsequent likelihood that a finalist will work at a startup, either as a founder or as a collaborator [76].

The School Shop Project program (SSP) shows how students learn what it means to be an entrepreneur, both through the processes of reflection from the questions of the inquiry and the processes of investigation, which allows knowing this domain and the development of the skills of dialogue and critical reflection [79].

The Discovering Entrepreneurship program (DE) brought results regarding motivation, ES, and the creation of new companies. In this sense, it motivated students to be

more expansive, to have greater clarity on the value of contributing to the community, to take risks, to focus themselves on the satisfaction of their achievements, for rebellion, to have self-control, high tolerance to ambiguity and novelty, independence, and autonomy, but with a focus on people and the search for challenges. In turn, the developed ES were social skills, leadership in networking, coaching and mentoring, identifying opportunities, creativity, and creative problem-solving. Finally, in terms of creating new companies, there were gains in establishing contacts through networking, risk-taking, and interpersonal skills [86].

The Leader Practice program (LP) revealed gains in self-leadership and the role of leader; in addition, students achieved gains in understanding the fact that leaders can delegate tasks and responsibilities and recognized the need for continuous improvement in communication with employees and with their family members; in turn, the Lean Agriculture program (LA) proved to be effective in discovering ways of working smoothly, establishing work routines and following previously established procedures, and managing time in a correct way [88].

The Project Entreprendre program (PE) proved to be useful in achieving results in the following areas: teamwork, business plan development, interactivity in project development, demand for continuous improvement, self-confidence, empowerment, attention to credibility, and seeking a balance between the formal and the informal [73].

Most studies have shown positive results from the interventions. However, it is worth highlighting a case in which the programs used in primary and middle education did not fully reach the objectives initially defined [63]; this fact is justified by the authors with the possibility that they did not correctly elaborate what was intended to be achieved explicitly with this entrepreneurship education action and/or the fact that the design of the evaluation strategies was not the most appropriate.

#### 4. Discussion

Regarding the effectiveness of the EEP, this systematic review provided an overview of the current literature, analyzing 29 programs, from 24 countries. Overall, programs dedicated to primary school students [62–64,79,81] showed a positive effect above all on entrepreneurial skills, highlighting the enhancement of individual skills, such as creativity, self-confidence, power of argument, and construction of social skills in relationships and interpersonal and groups settings. In addition, there were gains in the motivation to work on public causes such as sustainability and social innovation; improvements were found in respect for the environment, cooperation, and communication of ideas. Moreover, teachers at this level of education [82] also revealed self-confidence, initiative, innovation, creativity, mindfulness, empathy, self-motivation, and participation in society after the intervention program. These results are consistent with those presented by other studies that indicate gains when these skills are developed in childhood and adolescence [19,24,27,31].

On the other hand, studies related to secondary education [71,76,80] revealed that at these ages, in addition to fundamental entrepreneurial skills, it is already possible to deepen some more specific skills, such as business skills, reflection on the probability of founding a startup, perception of the benefits of starting a business, and the awareness of the consequences of choosing to pursue an original professional career. This is in line with studies that refer to the contents to be deepened with secondary school students and the strategies used in its promotion [4,9,17,47].

In turn, in higher education [62,65,67–69,72–75,77,78,83,84,86,87,89,90] and programs aimed at adult professionals [66,70,82,85,88], the programs focused on more advanced entrepreneurship concepts, namely networking, target market definition, market research, concept prototyping, financial markets, and intellectual property. Also significant are the effects on awareness of the difficulties and obstacles to following an entrepreneurial career. Thus, at this level, the programs emphasize those skills related to management, economics, finance, and marketing, highlighting the reference to those that enable them to take advantage of business opportunities, develop business models, prepare marketing

plans, to use social networks properly, to deal with the risk inherent to the business activity, and to solve problems and conflicts. This growth in the specification of skills developed over the progressive levels of education is in line with several experts in the area, who point out as essential a progressive and complementary teaching–learning process, which alludes to the fact that it is a time-consuming process [1,3,14].

More specifically, the results obtained from this review suggested that approaches focused on ES had a significant effect on the promotion of a certain type of culture, as is clearly shown in the UKids initial teacher training program, which aims to establish entrepreneurship, especially social entrepreneurship, as an element of teaching in primary schools [82]. This option has also been followed in other contexts, such as in Brazil, Portugal, and Sweden [99–101].

As suggested by Lyons and Zhang [76], the programs prove to be more effective for those who have limited access to entrepreneurial opportunities. Thus, they are more beneficial to participants who would have more difficulty accessing the resources and skills of the programs. For this reason, the dissemination of this culture among all students becomes very significant in the logic of an inclusive education that promotes social ascension [102–106]. In this review, there was a tendency for the EEPs to have a digital format, as is clearly shown in Newpath [87], for the development of projects in the scope of social entrepreneurship [38,71,82].

Among the strategies that stand out are those that promote communication skills for an adequate exposition of products and services [62,73,89,107]. According to McColough et al. [108], it is essentially a streamlining of the model for the rapid presentation of ideas. Moreover, being an entrepreneur presupposes skills regarding effective communication, namely the management of social networks and the use of digital platforms and communication channels best suited to a particular customer segment [47,109]. It has also been shown that networking is crucial in EE, with specific attention to partnerships established with institutions outside the school itself. This is in line with Cheung's research in the context of secondary education in Hong Kong [9].

In summary, and based on the review carried out, many problems emerged in the current socio-educational context, such as the high rate of unemployment, ecological and environmental issues, and academic failure. Considering this contextual complexity, most of the reviewed programs were developed based on the definition of a unique identity, pedagogy, and evaluation but always aiming to educate for the development of a culture where the capacity to create value is predominant. Among the identified entrepreneurial skills are the spirit of initiative, innovation, problem-solving, global leadership, teamwork and networking, digital and communication skills, the use and creation of business models, and marketing and e-commerce.

We concluded that the effectiveness of the EEP is mainly due to the quality of the design of the programs themselves, proven, for example, by their pedagogical approach, such as teaching methods, excellence of the facilitator, and activities carried out; by the predispositions of the participants—that is, if they started working on entrepreneurial skills since childhood, it becomes much more natural to be an entrepreneur; and by their integration or not in entrepreneurial ecosystems, verifying that whoever was born and lived in an entrepreneurial family or regional ecosystem more easily takes chances to innovate. Thus, the promotion of an entrepreneurial culture is the consequence of combining these elements, mobilizing individuals and societies for a continuous creation in this global world. For all these reasons, it is necessary to take advantage of the opportunities and face the current challenges, namely those related to the integration of EE in all levels of education, but giving priority to those aimed at younger generations, as well as seeking to improve the quality of scientific production in this field.

Despite the results obtained, this review is not exempt from limitations. First, the characteristics of the studies included vary widely, for example, in study design, the focus of the intervention, number of sessions, sample size, and main outcomes. For this reason, meta-analyses and statistical comparisons were not possible. Second, by restricting

the literature search to include only articles published in scientific journals in the past two decades, publications such as conference papers and dissertations may have been lost. Finally, although the methodological rigor of the studies has been assessed, it is important to note that this only indicates the overall quality of each study, including details of the program, but not specifically how information and strategies were addressed in the intervention.

Further research with rigorous designs is still needed to achieve stronger evidence about the effectiveness of the EEP. Furthermore, we suggest carrying out comparative studies of entrepreneurial pedagogy, in order to assess the effectiveness of the different methods of teaching entrepreneurship used by the different facilitators.

## 5. Conclusions

This study demonstrated that there has been a steady increase in EEP, and the vast majority of these programs are aimed at students in higher education, a few in secondary education, and even fewer in basic and pre-school education. In addition, it has been shown that most studies are more conceptual than empirical, thus neglecting cognitive and behavioral results. When their effectiveness was assessed empirically, the EEP revealed a moderate effect in activating entrepreneurial intent and a more notable effect on the development of ES. It was also found that, more than the EEP, it is the personal predispositions and family, economic, and cultural contexts that most influence the option for the development of entrepreneurial projects.

ESs were targeted at all levels of education and in all studies; however, greater attention was paid to these competencies in basic and secondary education. Moreover, the results of the studies show the effectiveness of these programs in promoting self-efficacy, an entrepreneurial attitude, resilience, risk-taking, and openness to novelty. In turn, there is no increase in the intention to create the business itself, since this intention is determined by predisposition, namely socio-cultural and family aspects.

The challenges that entrepreneurial leaders have in the current context are also noted, clearly marked by technologies and remote work, by the social complexity and unpredictability of work, and by the need to reconcile health and economy, entrepreneurship and citizenship. Moreover, one of the privileged strategies in this area is the educator himself. The educator's active, inspiring, and differentiating presence in the most diverse promotional contexts of entrepreneurship will allow entrepreneurial culture values. They should be skilled in using these and other useful tools to promote an entrepreneurial mindset.

Thus, this systematic review of the EEP points to the need for this type of programs to be applied preferentially since the early school years, since it is at that time that the predispositions for the development of entrepreneurial skills and intentions are created. This condition is corroborated by the EEP's global geography, which demonstrates that, where there is currently an entrepreneurial culture, countries have had a long educational journey, with strategic options from the point of view of educational policies that defend entrepreneurship among the younger generations. Our data also suggested that the promotion of an entrepreneurial culture takes place based on an interdisciplinary approach so that school curricula transversally integrate behaviors such as innovation, initiative, teamwork, and the creation of socio-professional projects based on business models.

Finally, this study also demonstrates the urgency of the entrepreneurial sciences, such as management, economics, and pedagogy, to promote a global entrepreneurial culture with the dissemination, through international educational networks, of programs on entrepreneurial skills. These skills will globally enable the transfer of knowledge to society, as they help solve some problems, such as unemployment and poverty, the environment and sustainability, health, and quality of life.

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