

Models and Methodologies for Entrepreneurship Education in Higher Education Institutions

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Introduction

Entrepreneurial education is a fundamental element of contemporary education, as its various pedagogical models foster innovative behaviors that significantly enrich the educational experience and strengthen students' entrepreneurial intentions (Wang, *et al.*, 2021). This educational process takes place mainly at the university level (Hasan, *et al.*, 2017; Kirkwood *et al.*, 2014). In this context, university institutions, in preparing future graduates professionally, can promote entrepreneurial education as a strategic tool to recognize entrepreneurship as a viable professional alternative and encourage students to actively participate in business initiatives (Duong *et al.*, 2024; Passarelli & Bongiorno, 2025).

However, the effectiveness of these pedagogical models varies significantly depending on the type of educational institution and regional context in which they are implemented (Ouragini *et al.*, 2023). Liu *et al.* (2021) argue that the effectiveness of entrepreneurial education depends fundamentally on the adoption of active and contextualized methodologies, transcending institutional characteristics. In this regard, Portuguese Castro *et al.* (2019) demonstrate through their research on the impact of higher education on entrepreneurship that the institutional environment and academic culture decisively influence the formation of entrepreneurial attitudes. This suggests that a more dynamic institutional environment that is strategically oriented toward promoting entrepreneurship may be the reason why university students are more predisposed to facing unforeseen situations and transforming emerging scenarios into business opportunities (Wardana *et al.*, 2020).

Entrepreneurship education in HEIs is a strategic educational process that develops competences to transform creative ideas into concrete entrepreneurial actions. According to the European Education and Culture Executive Agency (EACEA) of the European Union (2016), this pedagogical approach transcends disciplinary boundaries and integrates formal, non-formal and informal modalities to foster entrepreneurial mindsets, employability and active citizenship. Considering this context, the present study aims to analyze the main models of entrepreneurship education implemented in higher education institutions (HEIs) worldwide. The specific purpose of this analysis is to identify

their distinctive pedagogical characteristics and methodological approaches to the development of entrepreneurial competences in the university context.

The methodology adopted was a systematic review of models highlighted in the literature on entrepreneurship education in higher education, examining representative cases from Asia-Pacific, Europe, Africa and the Americas. The study analyses curricular approaches, pedagogical methods and organizational structures specifically designed for the university context.

The study's findings reveal that HEIs have developed specific pedagogical models that leverage their academic infrastructure, research resources, and institutional networks for entrepreneurship education. The most effective programs integrate entrepreneurship as a transversal competence, create internal innovation ecosystems, and establish systematic connections between academic training and real-world business applications. These programs adapt to specific institutional and cultural contexts. This study's main contribution to the scientific literature is its comprehensive, global overview of entrepreneurial educational models designed specifically for higher education. It identifies common pedagogical patterns that transcend geographical and cultural boundaries. Additionally, the study establishes a framework for future research on the comparative effectiveness and transferability of these models between different international university contexts.

The document is organized as follows. The next section presents the methodology, which details the steps of the research protocol. The third section discusses the results and highlights the main models of entrepreneurship education worldwide. The final section provides conclusions and practical implications.

In the initial phase of the search, the keywords *entrepreneurial education*, *models* and *approaches*, and *higher education* were used. These terms were entered into the Scopus database to generate an initial list of publications containing these keywords in the title, abstract, or keywords. Table 1 shows the key terms identified for each keyword, along with the search equation.

Table 1. List of keywords used for the literature search.

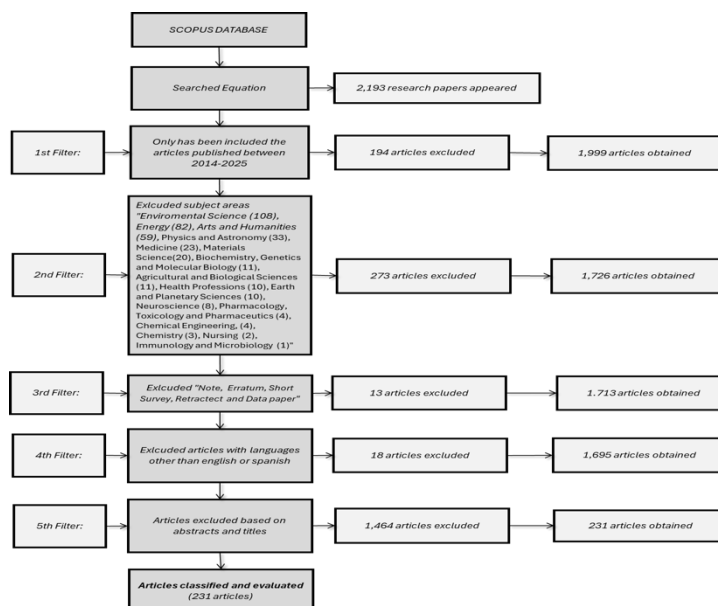
Groups	Key terms
<i>Entrepreneurial education</i>	"entrepreneurship education", "entrepreneurial education", "entrepreneurial learning", "entrepreneurial training", "entrepreneurial pedagogy", "entrepreneurial curriculum"

<i>Models and approaches</i>	"model*" OR "framework*", "pedagogical model*", "educational model*", "teaching model*", "instructional model*", "methodological approach*", "pedagogical approach*"
<i>Higher education</i>	"higher education", "university" OR "universities", "college*", "tertiary education", "undergraduate", "graduate", "academic institution*", "HEIs".
Search equation: TITLE-ABS-KEY (("entrepreneurship education" OR "entrepreneurial education" OR "entrepreneurial learning" OR "entrepreneurial training" OR "entrepreneurial pedagogy" OR "entrepreneurial curriculum") AND ("model*" OR "framework*" OR "pedagogical model*" OR "educational model*" OR "teaching model*" OR "methodological approach*" OR "pedagogical approach*") AND ("higher education" OR "university" OR "universities" OR "college*" OR "tertiary education" OR "undergraduate" OR 'graduate' OR "academic institution*" OR HEIs))	

Source: own elaboration.

The study included scientific articles, books, book chapters, reviews, and conferences in English and Spanish. The publication date was limited to the period between 2014 and 2025. The period between 2014 and 2025 covers the evolution of educational entrepreneurship in the context of relevant international policy frameworks (Europe 2020, Agenda 2030) and the accelerated digital transformation in the field of higher education. This period, which spans a decade, represents a stage of significant research consolidation, long enough to allow for the identification of consistent pedagogical patterns in contemporary educational models. Finally, the publications were selected to exclude articles unrelated to the topic, as shown in Figure 1.

Figure 1. Filters applied in the search for information



A review of academic articles by authors from various universities worldwide, including Belitski & Heron (2017), Dalmarco *et al.* (2018), Maheshwari & Kha (2022), and Núñez-Canal *et al.* (2022), revealed a range of models and methodologies for teaching entrepreneurship. The most relevant results are presented below.

Asia-Pacific

The *Kakinada Model of Entrepreneurial Education* in India (Tatpuje *et al.*, 2021) focuses on developing leadership, decision-making, and critical thinking skills. Its structure is designed to enhance entrepreneurial abilities. Similarly, the *Entrepreneurship Education Model for Higher Education Students* in Indonesia (Marini *et al.*, 2022) integrates theory and practice to help students transition to real entrepreneurial environments.

Public universities, on the other hand, adopt a mixed approach. One example is the *AIM Pyramid Framework for Entrepreneurship in India* (Government of India, 2015), which adapts student admission based on ability and need, promoting educational flexibility. This model is like *Student-Centered Talent Training Model for Innovation and Entrepreneurship* in China (Chen, 2022), in which students have the autonomy to drive innovative projects.

Also, in China, the *Internet + Maker Education University Innovative Entrepreneurship Education Model* combines digital tools with the principles of "maker" education (practicality, interactivity, and individuality) to enhance creativity and cooperation among university students. The program follows a structured seven-step cycle: idea generation, topic determination, online learning, design, creation, exhibition, and evaluation.

Teachers use multimedia resources that recreate real-life situations to encourage critical thinking, and students work in groups according to their interests. They choose courses on digital platforms and apply their knowledge to practical projects. These platforms are linked to technologies such as 3D printing, which brings ideas to life and facilitates collaboration with experts.

Assessment includes self-evaluations as well as feedback from experts and online users, ensuring improvement tailored to disciplinary and academic needs. The model prioritizes student autonomy, encouraging motivation and innovative thinking through active learning methods.

The University of Canberra in Australia adopted the Harvard Business School model, structuring its program around three pillars: opportunity assessment, resource assurance, and business growth. During the first year, which is called "personal orientation," students take the course "*Fundamentals of*

Entrepreneurship", which covers the entrepreneurial perspective, ethics, and strategic planning. They also take the course "*Entrepreneurship and Creativity*", in which they develop techniques such as brainstorming and lateral thinking. During the second year, students take "*Entrepreneurship and Innovation*", which emphasizes strategic marketing and capital management, as well as "*Project Evaluation and Planning*". In this course, students develop a business plan in accordance with investment standards. According to Alam et al. (2023), the model combines open innovation with experiential learning and requires technological infrastructure to link academia and industry. The model aims to develop entrepreneurial skills in students and lay the foundation for entrepreneurial education at the university level.

Europe and Africa

In Italy, the *Institute for Educational Technology - National Research Council of Italy* developed a game-based learning model called the *PNPV project*, which aims to foster the development of entrepreneurial knowledge and skills among young students. Its main objective is to introduce and promote an entrepreneurial mindset among young people, with a particular focus on small businesses, cooperatives, and social enterprises (La Guardia et al., 2014). And the program *CAST* is an intensive online entrepreneurship program organized by the *Center for Entrepreneurship and Innovation at the Polytechnic University of Turin*, aimed at students from various European technical universities with different levels of education and business backgrounds. This program takes a hands-on approach to learning, allowing participants to work on different types of projects while attending lectures and workshops on how to turn ideas into profitable businesses. The main objective of this program is to involve students in the development of business projects, providing them with theoretical content combined with practice-oriented work opportunities (Colombelli et al., 2022).

The South African University of Technology is one of the few institutions in the country with a department dedicated to entrepreneurship. The university offers programs ranging from diplomas to postgraduate degrees, and its curriculum was developed in collaboration with the Department of Higher Education and Training (Iwu et al., 2021).

America

Babson College developed the *Entrepreneurial Thought and Action* methodology, which demonstrates that entrepreneurship can be taught systematically. This approach combines action, experimentation, and creativity with solid business fundamentals to transform ideas into valuable opportunities (Chang et al., 2025). Based on the principle of "*Act, Learn, Build*", the model offers four key guidelines: begin with available resources (e.g., skills, knowledge,

and contacts); progress using data to adjust goals; value purpose and profit equally; and recognize that entrepreneurial leadership is a developable skill. The implementation integrates theory and practice through more than 80 courses and intensive training programs, as well as practical experiences such as simulations and company visits (Babson College, 2025). In Latin America, the Tecnológico de Monterrey (TEC) has implemented the *TEC 21 educational model*. Designed to develop leadership and innovation skills, the model takes a multidisciplinary approach that combines theory and practice. The model aims to prepare students to drive 21st-century socioeconomic transformations through entrepreneurship and innovation. In Colombia, EAN University developed the IN3 extramural incubation model, now called *EAN Impacta*. This model structures business development into three main areas and six incubation phases. This system transforms business initiatives into viable plans, especially for technology-based companies, and supports them throughout the process, from conceptualization to sustainability (Orozco Triana *et al.*, 2016).

Conclusions

Key findings by region include the following institutional models:

Asia-Pacific: Indian universities are implementing the curriculum-integrated Kakinada Entrepreneurship Education Model and the government's AIM Pyramid Framework. Chinese universities are developing the Student-Centered Talent Development Model and the Internet + Maker Education, which is being implemented in universities in Zhejiang. Indonesia presents specific university models such as Universitas Negeri Jakarta. Australia is developing the preliminary framework for undergraduate entrepreneurship education. Europe and Africa: Italian universities are adopting the CAST model and PNPV project. Romania develops entrepreneurship education through successful models in Iasi HEIs. South African universities apply the Entrepreneurial Intention Model.

America: The United States leads with the Babson College Entrepreneurship Education Model focuses on practical entrepreneurial action. In Latin America, Mexico is developing the Monterrey Technology Model (TEC 21) with a focus on high-impact entrepreneurship. Colombia presents models such as that of the EAN University has implemented an extramural incubation model called IN3, with the aim of turning business initiatives into business plans that can be incubated and transformed into technology-based companies. The models examined in HEIs emphasize cross-curricular integration, incorporating entrepreneurship into various disciplines. These models also include entrepreneurial university ecosystems, which connect classrooms, incubators, research centers, and industry links. Additionally, they incorporate real-world project-based learning, utilizing student startups and business collaborations.

Finally, these models employ competency-based assessment, which measures specific entrepreneurial skills rather than theoretical knowledge. HEIs have developed specific pedagogical models that leverage their academic infrastructure, research resources, and institutional networks. The most effective programs integrate entrepreneurship as a cross-cutting competency, create internal innovation ecosystems, and establish systematic bridges between academic training and real-world business application, adapting to specific institutional and cultural contexts.

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