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Entrepreneurial Competence and Its Impact on Vocational Education and Baccalaureate Teachers and Students: A Systematised Literature Review

Competencia Emprendedora y su Impacto
en Docentes y Estudiantes de Formación
Profesional y Bachillerato. Una Revisión
Sistematizada de la Literatura

I. INTRODUCTION

We live in an economic, social and cultural environment in constant transformation, marked by globalisation, digitalisation and changes in the labour market. This reality demands that education systems continuously adapt, not only in technical competences but also in soft skills such as initiative, creativity, resilience, empathy and cooperation, which are essential for employability and linked to the entrepreneurial profile (Arias Camarena & Colque Quispe, 2024; UNESCO, 2023).

Entrepreneurial competence has become a key tool in secondary education, particularly in vocational training and upper secondary education, as it fosters inclusion, holistic development and student employability (González-Tejerina & Vieira, 2021). It also has a positive impact on teachers, strengthening their role in transformative teaching (Flores Pastor et al., 2023), and on students, reinforcing



EXECUTIVE SUMMARY

Entrepreneurial competence is increasingly recognised as a key pillar in Vocational and Secondary Education, enhancing employability, personal development, and social inclusion. This study examines its impact on both teachers and students through a systematic review of 28 publications (2021–2025), following the PRISMA 2020 protocol. The findings highlight the influence of social, educational, and economic factors, and underscore the need for active methodologies, teacher education, and authentic pedagogical experiences to foster an ethical, inclusive, and transformative entrepreneurial culture.

RESUMEN DEL ARTÍCULO

La competencia emprendedora se consolida como un eje clave en Formación Profesional y Bachillerato, favoreciendo la empleabilidad, el desarrollo personal y la inclusión social. Este estudio analiza su impacto en docentes y estudiantes mediante una revisión sistemática de 28 publicaciones (2021–2025), siguiendo el protocolo PRISMA 2020. Los resultados revelan la influencia de factores sociales, educativos y económicos, y destacan la necesidad de metodologías activas, formación docente y experiencias pedagógicas reales para fortalecer una cultura emprendedora ética, inclusiva y transformadora.

their entrepreneurial identity and preparation for the socio-economic environment (Azqueta et al., 2024).

Farro-Ruiz et al. (2023) identified four areas of influence of entrepreneurial education: Economic: reduces poverty, drives innovation and improves productivity. Business: promotes sustainable initiatives, competitiveness and customer orientation. Social: encourages inclusion, quality of life and community engagement. Educational: recognised as a transversal competence throughout the education system.

However, despite its relevance and the strong impetus given by the European Union through the EntreComp framework for entrepreneurship, its integration into teaching practice remains limited due to the lack of specific teacher training, insufficient curricular planning, low classroom applicability and lack of institutional resources (Baena-Luna et al., 2020; González-Tejerina & Vieira, 2021). This gap affects both teaching and student employability, highlighting the need to promote quality education that develops entrepreneurial attitudes, knowledge and skills through active, contextualised methodologies committed to the environment (Caballero-García et al., 2021), with the systematic involvement of the entire educational community (Caballero-García et al., 2019; Caballero-García & Sánchez, 2025).

This study addresses this need, with the general objective of conducting a systematic review of the scientific knowledge produced between 2021 and 2025 on entrepreneurial competence in secondary education, with particular attention to vocational training and upper secondary education, in order to identify guidelines for its effective integration into teaching practice. The specific objectives were:

1. Analyse the concept of entrepreneurial competence and the factors influencing its development in secondary education.
2. Identify the entrepreneurial teacher profile and its training needs in vocational and upper secondary education.
3. Assess the benefits of entrepreneurial competence in terms of employability, inclusion and professional development.
4. Evaluate successful programmes that promote this competence among teachers and students, identifying effective strategies and methodologies.

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2. METHODOLOGY

The research adopts a qualitative approach, focused on documentary analysis and a systematised review of the literature, with the aim of critically examining knowledge on entrepreneurial competence in secondary education, particularly in vocational training and upper secondary education, and from the dual perspective of teachers and students. The purpose is to generate useful knowledge to improve teaching practice and the development of students' competences and future employability.

The literature review was conducted following PRISMA standards (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) by Page et al. (2021), applying its 27-item checklist and flow diagram to ensure transparency and rigour in the selection and analysis of the studies chosen to meet our objectives.

The process was carried out in five phases: a) Systematic search in specialised academic databases; b) Application of inclusion and exclusion criteria, previously defined to ensure the relevance and quality of the selected studies; c) Removal of duplicates and refinement of records; d) Critical evaluation of the documents according to their theoretical and methodological relevance; and e) Thematic organisation of the results. Below, we explain how each of these phases was developed.

2.1. Search

For the bibliographic compilation, we followed a comprehensive and balanced search strategy, combining general and specialised sources and using academic search engines such as Google Scholar and specialised databases such as Dialnet, ResearchGate and SciELO, selected for their relevance and frequent use in the fields of Social Sciences and Education.

The search was structured according to the objectives of the research, which allowed for a document selection aligned with our purpose. Boolean operators (AND, OR) were used to combine terms and refine results, and both Spanish and English terms were employed to broaden the international scope of the findings. **Table 1** presents the keywords by objectives.

KEYWORDS

Entrepreneurship,
Vocational Education,
Secondary Education,
Employability, Teacher
education.

PALABRAS CLAVE

Emprendimiento,
Educación
Profesional,
Educación
Secundaria,
Empleabilidad,
Formación Docente.

Table 1. Relationship between objectives and keywords

OBJECTIVE	KEYWORDS
1) Objective 1:Analyse the concept of entrepreneurial competence and determine which social, educational, and personal factors influence its development in the context of secondary education	a) Entrepreneurial competence b) Education c) Entrepreneurship d) Entrepreneurial spirit e) Entrepreneur f) Entrepreneurial initiative
2) Objective 2: Identify the characteristics of the entrepreneurial teacher profile in Vocational Education and Baccalaureate, and examine their training needs regarding the application of entrepreneurial competence in the classroom	a) Teacher entrepreneurial competence b) Education c) Quality education d) Methodology
3) Objective 3:Assess the benefits and implications of developing entrepreneurial competence in Vocational Education and Baccalaureate in terms of employability, inclusion, and professional development	a) Student entrepreneurial competence b) Entrepreneurship c) Entrepreneurial spirit d) Entrepreneurial initiative
4) Objective 4: Evaluate successful intervention programmes aimed at fostering entrepreneurial competence among teachers and students in Vocational Education and Baccalaureate, to identify strategies and methodologies that support its effective implementation in the classroom	a) Entrepreneurial competence b) Quality education c) Entrepreneurship d) Methodology e) Entrepr* (to locate “entrepreneurship”, “entrepreneurial”, etc.)

Table 2 summarises the references found, selected and published between 2021 and 2025, organised by frequency, search engines and databases used.

Table 2. Search engines, databases, and bibliographic references published between 2021–2025

SEARCH ENGINES AND DATABASES	REFERENCES (FR)		
	TOTAL	2021 - 2025	SELECTED
ResearchGate	5.230	2540	13
Google Scholar	657	387	7
Scielo	28	7	3
Dialnet	22	11	5
Totals	5.939	2.947	28

A total of 5,939 documents on entrepreneurial competence in secondary education were identified, of which 2,947 correspond to the period analysed (2021–2025). ResearchGate provided the majority (5,230) of useful documents, followed by Google Scholar (657), Dialnet (28) and SciELO (22).

2.2. Application of inclusion/exclusion criteria

To ensure thematic relevance, timeliness, methodological quality and alignment with the study objectives, we established clearly defined inclusion and exclusion criteria, which guided both the initial identification and the final selection of documents for analysis.

Inclusion criteria:

- Publication date: sources from the last five years (2021–2025), although some documents from 2015–2020 were considered for their significant contribution to the theoretical framework or understanding of the phenomenon studied.
- Language: texts in English and Spanish.
- Access: open access and full-text availability.
- Type of source: systematic reviews, meta-analyses, books, book chapters, articles and scientific reports, peer-reviewed and meeting quality and scientific rigour standards.
- Field of knowledge: Social Sciences and Education.
- Educational stage: Secondary Education, preferably vocational training and upper secondary education.
- Thematic relevance: studies focused on entrepreneurial competence in secondary education contexts, vocational training and upper secondary education, methodologically rigorous and with clear empirical evidence.

Exclusion criteria:

- Publication date: articles prior to 2020.
- Language: studies in languages other than Spanish or English.
- Access: restricted-access documents and incomplete texts.
- Grey literature: undergraduate and master's theses, bulletins, internal institutional documents, regulations, guidelines, manuals, conference proceedings and technical reports not peer reviewed.
- Field of knowledge: works addressing entrepreneurship exclusively from a business or economic perspective, without an educational focus.
- Educational stage: studies focused on educational levels other than secondary education, vocational training and upper secondary education.

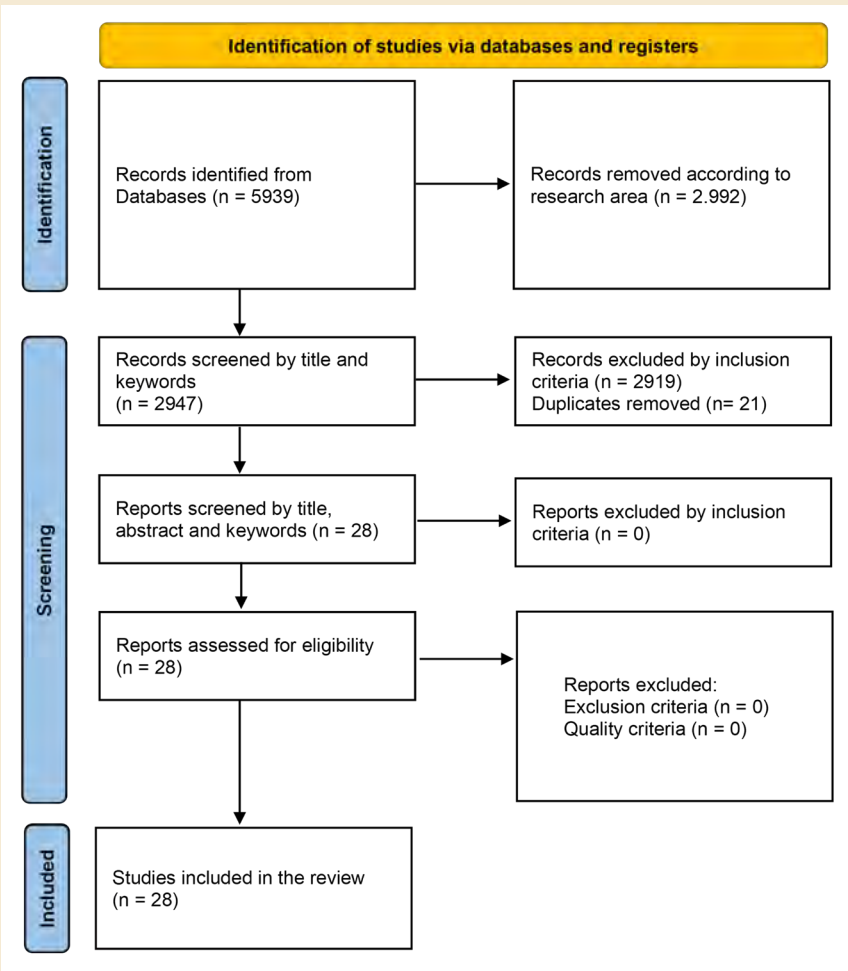
- Thematic relevance: studies not specifically related to entrepreneurial competence in the mentioned educational levels, that do not contribute to the study objectives, or that present methodological weaknesses and lack empirical evidence.

After applying these criteria, the results of our search were reduced to a total of 28 useful documents: 13 from ResearchGate, 7 from Google Scholar, 5 from Dialnet and 3 from SciELO (**Table 2**).

2.3. Data refinement

Once the sources were located and the inclusion/exclusion criteria applied, we proceeded to the phase of duplicate removal and record refinement. **Figure 1** summarises the study selection process at each stage: identification, screening, eligibility and inclusion.

Figure 1. Study selection process



In the identification phase, 5,939 records were located from academic databases such as Google Scholar, ResearchGate, Dialnet and SciELO. In the screening phase, 2,992 were removed for not fitting the field of knowledge or lacking full access, and 2,947 documents were reviewed by reading their title and abstract. In the eligibility phase, a full reading was carried out of the texts that met the inclusion criteria, and articles that did not directly address the study objectives were discarded. In the inclusion phase, 28 documents were selected to form the final sample.

2.4. Critical Evaluation of Content and Thematic Organisation of Results

In the critical evaluation phase, a detailed reading of the selected texts was carried out, classifying them by year of publication, database, type of document and thematic block.

This categorisation allowed the structuring of the documentary corpus into four main areas: conceptual aspects of entrepreneurial competence, teacher training, impact on students and intervention programmes. In addition, the temporal evolution of academic interest in entrepreneurial competence was analysed, as well as the diversity of methodological and contextual approaches. The information was systematised in Excel tables to facilitate comparisons and identify relevant patterns.

This process ensured methodological coherence and the relevance of the documents included, as well as a rigorous interpretation aligned with the research objectives. **Table 3** presents the distribution of documents by criteria.

Table 3. Documents by year of publication, source database, type of document, main theme and content block

YEAR	DATABASE	DOCUMENT TYPE	AUTHORS	DOCUMENT TITLE	MAIN THEME	THEMATIC BLOCK
2016	ResearchGate	Article	García-Palma, M. B., & Sánchez-Mora Molina, M. I.	Knowledge and female entrepreneurship: A competence and social dimension	Analysis of entrepreneurial discourse on knowledge	Conceptual Aspects
2018	ResearchGate	Article	Ibáñez-Romero, A., & Zabala-Iturriagoitia, J. M.	Competencia Emprendedora: La Experiencia de iNNovaNDiS	Impact of the iNNovaNDiS programme on entrepreneurial competences	Intervention Programmes

2020	Dialnet	Article	Prendes Espinosa, M a. P., Solano Fernández, I. M a, González Martínez, J., & Cerdán Cartagena, F.	Competencia de emprendimiento en educación secundaria: percepción del profesorado sobre el estado actual y las posibilidades futuras en el contexto europeo	Quantitative study on teachers' perception in Europe regarding entrepreneurship	Teacher Training
	ResearchGate	Article	Guillén Tortajada, E., Jiménez Martínez, P., Szala, L., Caballero García, P.A. y Alcaraz Rodríguez, R.	Diseño y validación inicial de un instrumento de medición de la competencia emprendedora sobre su tratamiento y comunicación en las aulas universitarias. Datos preliminares.	Design and initial validation of an instrument to assess entrepreneurial competence	Impact on Students
2021	ResearchGate	Article	Bernal-Guerrero, A., Cárdenas Gutiérrez, A. R., Domínguez-Quintero, A. M., & Montoro-Fernández, E.	El potencial emprendedor en un programa de educación emprendedora en la ESO. Un estudio de caso	Entrepreneurial education as initiative and personal autonomy	Conceptual Aspects
	Dialnet	Article	Araya-Pizarro, S.	Autoconfianza y Actitud hacia la Enseñanza del Emprendimiento: Impulsores clave de la intención emprendedora.	Case study on entrepreneurial attitude in university students	Impact on Students
	SciELO	Article	Lloja Rengifo, H., Chugnas Malimba, E. S., Tello Fasanando, Z., & Cruz Tarrillo, J. J.	Intención Emprendedora: percepción desde los estudiantes universitarios	Predominant factors in entrepreneurial intention	Impact on Students
	Google Scholar	Article	Fernández-Saliner Miguel, C., De La Riva Picatoste, B., & Martín-Gutiérrez, Á.	El aula profesional de emprendimiento de la Universidad Complutense de Madrid: Aprender y emprender	Analysis of professional entrepreneurship classroom at UCM	Intervention Programmes
		Article	Bernal-Guerrero, A., Cárdenas Gutiérrez, A. R., Domínguez-Quintero, A. M., & Montoro-Fernández, E.	El potencial emprendedor en un programa de educación emprendedora en la ESO. Un estudio de caso	Case study on entrepreneurial potential in secondary education	Intervention Programmes

2022	Google Scholar	Article	Guevara Gómez, H. E., Carlos Ramos, J.A., Jamanca Gonzales, N. C., & Gomero Mancesidor, J. M.	Emprendimiento y educación universitaria: Una relación necesaria	University contribution to technical knowledge for entrepreneurship	Impact on Students
	ResearchGate	Chapter	Sanz Ponce, R., & Núñez-Canal, M. ter	El docente ante la enseñanza de la competencia emprendedora: el modelo EntrepComedu	EntrepComEdu model for teacher entrepreneurial competence	Intervention Programmes
2023	ResearchGate	Article	Echeverría-Ávila, R., & Garza Estrada, R.	Educación Emprendedora: respuesta a la crisis de la Covid-19	Impact of the COVID-19 crisis on entrepreneurial education	Conceptual Aspects
	Dialnet	Article	Lladó Lárraga, D. M., Espinosa Barajas, J. H., & Leal Ríos, F.	El emprendimiento. Reto de la educación superior ante el mercado laboral global y flexible.	Overview of the need for entrepreneurial training at higher education level	Teacher Training
		Article	González-Tejerina, S., Rodríguez-Esteban, A., & Vieira, M.J.	Perfil del profesorado cuyas prácticas docentes favorecen la competencia emprendedora	Variables predicting entrepreneurial teaching practices	Teacher Training
	Google Scholar	Article	Flores Oré, B. R.	Emprendimiento digital en estudiantes de educación superior.	Review on digital entrepreneurship in higher education	Impact on Students
		Article	Morales Cuervo, H.L.	Emprendimiento en la Educación Media Vocacional: una revisión sistemática	Review on entrepreneurship in vocational secondary education	Impact on Students
		Article	Cajas Molina, D. R., Lagla Chicaiza, R. X., Salazar Bedón, S. E., & Laica Herrera, M.Y.	Aprendizaje basado en proyectos en la docencia: una revisión sistemática de la literatura	Systematic review on project-based learning in teaching	Intervention Programmes
		Article	Atoche-Peralta, M. F., Ibarra-Echevarría, L., Ruiz-Ruiz, M. F., & Sallandt, U.	Formación en emprendimiento para el desarrollo de competencias emprendedoras en la educación básica latinoamericana: una revisión de literatura.	Review on entrepreneurial training in basic education	Intervention Programmes

2024	ResearchGate	Article	Jaramillo Jaramillo, M.J., García Hernández, P., & Álvarez Botello, J.	El papel de las prácticas docentes en el desarrollo de habilidades emprendedoras: estudio de caso en el Centro Universitario UAEMéx Temascaltepec.	Teaching practices to foster entrepreneurial competences	Teacher Training
	Google Scholar	Article	Acuña Romero, Y.M.	Emprendimiento empresarial en los estudiantes universitarios del Perú: Estudio de revisión	Review on business entrepreneurship among university students	Impact on Students
		Article	Mendoza Champion, J. A., Barrutia Barreto, I., Bejar, L. H., Huamani, O., Borja, J., & Flores Asqui, P. R.	La educación y la intención emprendedora en estudiantes universitarios: una revisión en Latinoamérica	Review on education and entrepreneurial intention in Latin America	Impact on Students
	ResearchGate	Article	Azqueta, A., Sanz-Ponce, R., Núñez-Canal, M., & Montoro-Fernández, E.	Evaluación del impacto de un programa de formación del potencial emprendedor en estudiantes de educación secundaria	Evaluation of entrepreneurial training programme in secondary education	Impact on Students
		Article	Midolo-Ramos, W. R., Cornejo-Condori, Y. M., & Vera-Ballón, E. L.	Resiliencia y competencias emprendedoras de estudiantes universitarios	Relationship between resilience and entrepreneurial competences	Impact on Students
	Dialnet	Article	Torres Zambrano, J. F., & Rincón Rueda, A. I.	Los proyectos educativos productivos en la formación de la competencia emprendedora en colegios rurales	Impact of productive educational projects on entrepreneurial competence	Intervention Programmes

2025	ResearchGate	Article	Gonzales Ticona, Y., & Escobar Prado, N.	Ajustes a la educación emprendedora como motor para mejorar el crecimiento y desarrollo económico en Bolivia	Entrepreneurial education as a driver of economic development	Conceptual Aspects
		Article	Zegarra Aquino, M.	Responsabilidad Social Universitaria y su aporte en la formación de competencias emprendedoras en la región de Tacna	Influence of University Social Responsibility on entrepreneurial training	Teacher Training
		Article	Tirado García, J. I., Lugo Gil, C.Y., & Torres Figueroa, M. G.	Análisis de la relación del perfil emprendedor y el impacto de la universidad para estudiantes del área económico-administrativa	Relationship between entrepreneurial profile and teaching work	Impact on Students
	Google Scholar	Article	Neri Guzmán, J. C., González Ramírez, P. I., Becerra Bizarrón, M. E., & Domínguez Valdez, B. M.	Infraestructura de emprendimiento y su relación con la intención emprendedora	Relationship between infrastructure and entrepreneurial intention	Impact on Students

Most of the documents are scientific articles published between 2016 and 2025, with a notable concentration in the years 2023–2024. Of these, 88.57% correspond to the period 2021–2025, reflecting a growing academic interest in entrepreneurial competence in secondary education over the past five years. The remaining 11.43% relate to the years 2016–2020 and were included in the analysis due to their relevance to the research.

Regarding document typology, 97.14% are scientific articles published in specialised databases such as ResearchGate, Dialnet, SciELO and Google Scholar. Only 2.86% fall under the category of book chapters.

As for authorship, researchers from Spain and Latin America predominate, providing an Ibero-American perspective to the analysis, with studies focused on secondary education, which is the subject of our interest.

Finally, the texts were grouped by theme. Conceptual aspects are covered in five publications that reflect on entrepreneurship

as a personal initiative, an economic driver or a response to crisis situations such as COVID-19. Teacher training is addressed in seven studies focusing on teachers' perceptions, needs and practices, as well as teaching models such as EntrepComEdu. The largest block concerns the impact on students, with 13 documents analysing factors such as attitude, resilience, infrastructure, entrepreneurial intention and outcomes of training programmes. Lastly, intervention programmes are presented in 10 texts describing successful educational experiences, active methodologies such as project-based learning (PBL), and institutional models for entrepreneurial training.

This classification reflects the diversity of approaches adopted and the evolution of academic interest in entrepreneurial competence in secondary education over the past five years, with particular attention to 2023–2024, highlighting the topicality and relevance of the subject.

3. RESULTS

3.1. Conceptual Foundations of Entrepreneurial Competence and the Entrepreneurial Teacher Profile

Entrepreneurial competence has become a key and transversal skill in today's educational context, particularly within a globalised labour market marked by instability, automation and competitiveness. This competence enhances employability and professional development and acts as an effective tool to combat poverty and unemployment (Gonzales Ticona & Escobar Prado, 2025; Lladó-Larraga et al., 2023).

Entrepreneurship is regarded as the “cornerstone” of a country's economic development (Flores Oré, 2023) and as an opportunity for self-employment and job creation (Lladó-Lárraga et al., 2023). This vision requires society, the economy and institutions to adapt to these changes (Neri Guzmán et al., 2025).

Moreover, organisational learning and innovation generate economic benefits and workplace well-being (Barghouti Abrini et al., 2024). This reinforces the need to train ethical and socially responsible entrepreneurs aligned with a sustainable and humanistic approach. The labour market demands profiles with entrepreneurial attitudes and competences, which underlines the importance of integrating this competence into secondary education, vocational training and

upper secondary education. The reviewed literature identifies four key dimensions of entrepreneurship: as a personal initiative, as an economic driver, as a response to crises (such as COVID-19) and as a transformative element of the educational and social environment (Bernal-Guerrero et al., 2021; Echeverría-Ávila & Garza Estrada, 2023).

Authors such as García-Palma and Sánchez-Mora (2016) highlight its social dimension, particularly among women, while recent studies advocate adapting institutional and curricular frameworks to labour market demands (Neri Guzmán et al., 2025). In this context, entrepreneurship is understood as a life attitude involving creativity, resilience, critical thinking and the ability to generate value in uncertain contexts.

Despite its relevance, entrepreneurial competence is poorly integrated into teaching practice, especially in secondary education and vocational training. The causes include: lack of specific teacher training, limited applicability of the EntreComp framework in the classroom (Baena-Luna et al., 2020) and absence of practical references and methodological guides (Prendes Espinosa et al., 2020).

The entrepreneurial teacher profile, therefore, must go beyond content transmission and incorporate an ethical, inclusive and transformative vision that fosters autonomy, initiative, cooperation and social responsibility (Caballero-García et al., 2023; González-Tejerina et al., 2023), as evidenced by models such as EntrepComEdu (Sanz Ponce & Núñez-Canal, 2022).

Entrepreneurial competence should be promoted from a systemic perspective, with the commitment of the entire educational community and the support of coherent institutional policies (Caballero-García et al., 2019; Caballero-García & Sánchez, 2025).

3.2. Training Vocational and Upper Secondary Teachers in Entrepreneurial Competences

Teacher training in entrepreneurial competences is established as a strategic axis for transforming educational practice in vocational training and upper secondary education. This training not only improves students' employability but also strengthens their social inclusion and ability to adapt to a changing and demanding labour market.

Educational content and programmes should focus on developing key skills such as leadership, positive thinking, idea generation and the creation of products or services with local and sustainable impact (Neri Guzmán et al., 2024; Tirado García et al., 2025). Educational institutions play a key role in consolidating physical and strategic infrastructures that promote entrepreneurship from an interdisciplinary and applied perspective.

The literature highlights methodologies such as project-based learning (PBL), cooperative learning, problem-based learning and outdoor teaching as effective approaches to fostering entrepreneurial competence (Azqueta et al., 2024; Bernal-Guerrero et al., 2021; Fernández-Salineró et al., 2021). These methodologies allow learning to be contextualised, linked to the environment and aimed at developing skills such as creativity, resilience and decision-making. Therefore, it is essential that teachers acquire entrepreneurial competences before teaching them (Llardo-Larraga et al., 2023). In this regard, urgent needs for continuous training in critical thinking, problem-solving and creativity have been identified (González-Tejerina et al., 2023). There is also a lack of teaching guides, practical references and strategies for managing interdisciplinary groups, as well as limited digital training that restricts the implementation of innovative projects such as MOTIVA (Prendes Espinosa et al., 2020). An innovative teaching team facilitates these initiatives (González-Tejerina et al., 2023).

Universities must establish links with businesses to transfer knowledge to the environment and offer training activities such as workshops and seminars (Bernal-Guerrero et al., 2021; Fernández-Salineró et al., 2021). The role of universities is fundamental in developing an entrepreneurial spirit (Mendoza Champion et al., 2024). Examples such as the Professional Entrepreneurship Classroom (APE) at the Complutense University of Madrid show how interdisciplinary work, business creation and entrepreneurship awareness can be promoted with the participation of academic and professional mentors (Mendoza Champion et al., 2024).

Finally, it is important to emphasise that the ethical dimension of this training must occupy a central place. Entrepreneurial education cannot be limited to technical skills; it must train professionals who are aware of the social impact of their actions and capable of acting with responsibility and commitment. This professional ethics should be supported by codes of conduct and reflection on the purposes of

the profession, integrating personal values without making them the sole guide (Bernal-Guerrero et al., 2021; Fernández-Salineró et al., 2021).

3.3. Limitations, Obstacles and Recommendations for Training Based on the Development of Entrepreneurial Competence in Vocational and Upper Secondary Education

The development of entrepreneurial competence among vocational and upper secondary students represents a strategic opportunity to enhance their employability, social inclusion and personal development. This training strengthens skills such as creativity, problem-solving and adaptability, although its implementation faces limitations that require a comprehensive approach.

The reviewed studies indicate that entrepreneurial intention is determined by personal factors (skills, abilities and capacities) and external factors (institutional and governmental support) (Lloja Rengifo et al., 2021). Role models (known entrepreneurs), prior experience, knowledge of entrepreneurship, and perceptions of the entrepreneurial image and spirit also exert influence (Araya-Pizarro, 2021; Mendoza Champion et al., 2023).

Students with a positive attitude towards entrepreneurship develop significant business skills, even without having participated in specific training programmes (Ázqueta et al., 2024). This suggests that an entrepreneurial attitude is a key predictor of professional success, provided it is accompanied by real opportunities for application.

Regarding the development of key competences and skills, four dimensions are identified for assessing entrepreneurial competence: solution development, opportunity identification, learning from failure and awareness of entrepreneurship as an agent of social change. These are complemented by general work-related competences such as project ideation, resource management, teamwork, problem-solving and planning (Lladó-Lárraga et al., 2023). Resilience stands out as a critical skill (Midolo-Ramos et al., 2024).

The influence of teachers and educational institutions is another decisive factor. Teaching performance directly impacts the entrepreneurial profile of students (Bernal-Guerrero et al., 2021; Tirado García et al., 2023). An innovative and cohesive teaching team fosters this development, whereas disruptive behaviour in the classroom hinders it (González-Tejerina et al., 2023).

Finally, social responsibility emerges as a relevant driver for promoting entrepreneurial competences. Recent studies reveal positive correlations between these variables (Zegarra Aquino, 2025), although their impact depends on how students perceive and experience institutional programmes (Tirado García et al., 2025). In this context, the following recommendations are proposed: strengthen teacher training in entrepreneurial competences and active methodologies; promote the use of digital technologies in the classroom; design institutional programmes that integrate mentoring, business simulators and entrepreneurship fairs; and foster an entrepreneurial culture from an ethical, inclusive and sustainable perspective.

3.4. Successful Intervention Programmes Oriented Towards the Development of Entrepreneurial Competence in Vocational and Upper Secondary Education

The effective implementation of entrepreneurial competence in the classroom requires well-structured intervention programmes that combine active methodologies, innovative educational resources and a transformative vision of the teaching-learning process. The documentary analysis carried out identifies strategies that have yielded and may yield positive results in vocational and upper secondary contexts:

The entrepreneurial marketing (EM) model for emerging markets (agro-entrepreneurs) proposed by Kamarudin et al. (2024), oriented towards customer focus, innovation and sustainability, offers a conceptual framework adaptable to secondary education, providing a practical basis for strengthening entrepreneurial competence.

Among active methodologies, project-based learning (PBL) stands out as an effective tool for connecting theory and practice (Azqueta, 2021; Bernal-Guerrero et al., 2021; Fernández-Salinero et al., 2021), promoting personal initiative, creativity and innovation through interdisciplinary projects. Problem-based learning, cooperative learning and outdoor teaching complement this approach, enabling the tackling of real-world problems, fostering teamwork and linking the curriculum to the environment, respectively (Bernal-Guerrero et al., 2021; Fernández-Salinero et al., 2021).

Regarding specific programmes, PEIEO (Training Entrepreneurial Potential) is presented as a comprehensive educational model that develops entrepreneurial attitudes such as leadership, creativity

and achievement orientation through a combination of active methodologies and teacher autonomy (Azqueta et al., 2024; Bernal-Guerrero et al., 2021).

The Professional Entrepreneurship Classrooms (APE), promoted by the Community of Madrid since 2017 and coordinated by teachers of Training and Labour Orientation (FOL), constitute a successful example of institutional intervention. They offer physical and virtual resources, mentoring and real opportunities for creating micro-enterprises, fostering employability and the development of entrepreneurial projects (Bernal-Guerrero et al., 2021; Fernández-Salineró et al., 2021).

Other innovative actions include: A) Curriculum restructuring practices incorporating content on sustainable entrepreneurship and leadership (Tirado García et al., 2025). B) Business incubators and entrepreneurship fairs, which connect students with real cases and mentoring. C) Mentoring programmes that facilitate links with experts and local entrepreneurs (Jaramillo et al., 2024). D) Extracurricular activities enabling students to develop and finance their ideas. E) Business simulators, valued by teachers as key tools for developing business skills (Jaramillo et al., 2024; Lladó-Lárraga et al., 2023). F) Partnerships with companies and funding programmes, including technology parks, start-ups, business angels and crowdfunding (Bernal-Guerrero et al., 2021; Neri Guzmán et al., 2024). G) Entrepreneurship laboratories as creative spaces for innovation (Lladó-Lárraga et al., 2023).

Finally, the importance of continuous teacher training is emphasised as an essential condition for the success of any intervention. Training should focus on transversal competences such as creativity, critical thinking and problem-solving, and be institutionally supported (González-Tejerina et al., 2023; Tirado García et al., 2024).

4. CONCLUSIONS

This study systematises scientific knowledge (2015–2025) on entrepreneurial competence in secondary education, with a focus on vocational training and upper secondary education. Four main axes are highlighted: the concept of entrepreneurial competence (entrepreneurship as a transversal competence determined by social, educational and personal factors); the profile of the entrepreneurial teacher (characterised by the ability to foster initiative, creativity and

leadership among students) and their training needs (towards active methodologies and digital tools applied to entrepreneurship, including transversal competences such as critical thinking, problem-solving and leadership); the impact on students (improving employability, autonomy and inclusion, with key dimensions identified such as problem-solving, learning from failure, entrepreneurial attitude and institutional support); and successful intervention programmes (strategies such as PBL, cooperative learning, PEIEO, incubators and mentoring connect theory and practice, fostering real skills). The research demonstrates that entrepreneurial competence, when cultivated from early educational stages, not only improves students' employability and personal development but also generates tangible benefits for the business sector.

4.1. Practical Implications

Based on these axes, practical implications from an educational perspective include: incorporating active methodologies and resources such as simulators and laboratories (Azqueta et al., 2024; Bernal-Guerrero et al., 2021); continuous teacher training in transversal competences and technologies (Atoche-Peralta et al., 2023; González-Tejerina et al., 2023; Prendes Espinosa et al., 2020); university–business collaboration for mentoring and knowledge transfer (Fernández-Salineró et al., 2021); and reforming curricula to include content on sustainable entrepreneurship and social responsibility (Tirado García et al., 2025; Zegarra Aquino, 2025). Additional implications are relevant for the business sector, particularly for managers interested in strengthening the connection between education and industry:

1. Entrepreneurial competence as a strategic asset
Entrepreneurial competence is not exclusive to education. Its development in vocational and upper secondary students enables companies to identify talent with key skills (leadership, creativity, resilience, critical thinking). It is recommended to establish partnerships with educational centres to promote internships, mentoring and dual training.
2. Promoting an entrepreneurial culture from an early age
Business participation in fairs, business simulators and programmes such as Professional Entrepreneurship Classrooms (APE), acting as mentors or collaborators, strengthens the local

ecosystem, improves youth employability and generates positive social impact.

3. Continuous training as a driver of change
Companies can share real experiences, market challenges and digital tools, and offer workshops, talks and resources on innovation, leadership and project management aligned with active methodologies (PBL, cooperative learning), enriching and bringing teaching closer to the professional environment.
4. Curriculum adapted with a business vision
Including content such as sustainability, innovation and leadership in vocational and upper secondary education, together with the use of indicators such as EntreComp, facilitates the assessment of entrepreneurial competences and their alignment with recruitment processes. Collaborating in defining key competences and evaluating entrepreneurial skills can ease the transition from classroom to workplace.
5. Alignment with the Sustainable Development Goals (SDGs)
The actions resulting from this research are linked to SDG 4 (quality education), SDG 8 (decent work) and SDG 10 (reduced inequalities). Companies can integrate these goals into their corporate social responsibility (CSR) strategies and collaborate with educational centres on initiatives with social and economic impact.
6. Applicability to companies committed to innovation and young talent with an entrepreneurial mindset
Students with an entrepreneurial mindset stand out for their adaptability, leadership and problem-solving skills. Companies can incorporate internship programmes, dual training and mentoring into their HR policies.
7. Building sustainable entrepreneurial ecosystems
Educational transformation requires the active involvement of the entire community: teachers, students, companies and institutions. Businesses should act as strategic partners in creating innovative, sustainable educational ecosystems connected to global challenges.

4.2. Limitations and prospects

This study presents limitations that should be considered when interpreting the results, but which also open new avenues for research: The predominance of studies published in Spanish and

the limited access to full articles and specific databases may have excluded relevant studies with greater international visibility and restricted the generalisation of findings to broader educational contexts (Bernal-Guerrero et al., 2021; Prendes Espinosa et al., 2020). Likewise, there is limited empirical validation of theoretical models such as personal branding, which, although offering a promising theoretical framework, require testing in real contexts to assess their applicability and effectiveness. By focusing on secondary education, research on other educational stages is lacking, preventing a longitudinal understanding of the development of entrepreneurial competence from early ages (Atoche-Peralta et al., 2023). This situation also affects studies on complementary topics, such as gender stereotypes in entrepreneurship, which require greater attention for a more inclusive and equitable view of the phenomenon (Echeverría-Ávila & Garza Estrada, 2023). Most of the analysed studies focus on the educational sphere, with limited direct involvement of the business sector. This restricts understanding of the link between entrepreneurial training and the real needs of the labour market, highlighting the importance of promoting collaborative research between educational institutions and companies to build more robust, contextualised and sustainable entrepreneurship models.

For the future, it is proposed to broaden the geographical scope of research, develop empirical studies (Bernal-Guerrero et al., 2021) that validate innovative models in real contexts, and foster active collaboration between educational institutions, companies and social actors. Furthermore, the need to improve teacher training for teaching entrepreneurial competences and integrating digital technologies is emphasised.

Entrepreneurial competence is expected to evolve towards a more collaborative, ethical and sustainable approach, aligned with the SDGs of the 2030 Agenda. To achieve this, it will be necessary to redesign curricula, incorporate content on social entrepreneurship and sustainability as transversal axes in training programmes, and strengthen corporate social responsibility as a driver of change (Tirado García et al., 2024). In line with this vision, Romero (2025) stresses the importance of adopting sustainable business practices in the European context, proposing entrepreneurial training that integrates social responsibility as a transversal axis. This perspective coincides with the need to train students capable of acting as agents

of change, committed to an ethical, inclusive and contextualised entrepreneurial culture. Companies, within this framework, are called upon to play an active role in developing entrepreneurial talent, not only as employers but as strategic partners in building innovative, sustainable educational ecosystems connected to global challenges. Investing in practical entrepreneurial education, connected to the environment and supported by institutional partnerships, will enable the training of students who are better prepared, creative and committed to their surroundings, and citizens capable of generating value, transforming their communities and successfully facing future challenges.

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