



Promoting Corporate Sustainability Through Entrepreneurship Education: A Systematic Literature Review

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Abstract. This systematic literature review explores the integration of corporate sustainability (CS) into entrepreneurship education (EE) within higher education institutions (HEIs). The growing emphasis on sustainable development highlights the need for future entrepreneurs to adopt sustainable business practices. By analyzing 43 relevant articles from 2013 to 2024 in the Scopus database, the review identifies the significant role of EE in fostering responsible entrepreneurship. It highlights the necessity for innovative pedagogical approaches and stakeholder involvement to effectively embed sustainability in entrepreneurship education, thereby preparing students to contribute to a sustainable future. The findings underscore the importance of interdisciplinary learning and highlight the need for higher education institutions (HEIs) to overcome challenges in teaching sustainability-related courses. This review provides insights and recommendations for educators and policymakers to enhance the integration of corporate sustainability into entrepreneurship education.

Keywords: Entrepreneurship education, corporate sustainability, sustainable business model, sustainable entrepreneurship

1. Introduction

Given the current state of the economy, there is a greater need to support entrepreneurial activities that lead to the establishment of successful businesses, which in turn boost national economies by creating jobs and stimulating economic activity (Packham et al., 2010). To support this finding, entrepreneurship education (EE) has become increasingly available in higher education globally (Kuratko, 2005). In line with this development, entrepreneurs are increasingly being called upon to support the sustainability agenda, as they are acknowledged to play a major role in facilitating societal change (Wennekers et al., 2002). While the primary driving force behind this agenda is the delivery of EE at business schools, it has been acknowledged that doing so can create a "silo mentality" in which faculty members are unwilling to actively engage, embed, and collaborate with this agenda (Jones et al., 2013).

Entrepreneurship is a key driver of both financial and social development at the individual and corporate levels (Frynas & Yamahaki, 2016; Zhang et al., 2019). In the face of global economic, social, and environmental challenges, it has emerged as a significant catalyst for economic growth and development (Mofijur et al., 2021; Ibn-Mohammed et al., 2021), prompting countries to implement policies that foster entrepreneurship (Naradda et al., 2020). Higher Education Institutions (HEIs) have also incorporated entrepreneurship education (EE) into their curricula to inspire students and equip them with a broad range of knowledge, skills, and attitudes (KSA) (Nabi et al., 2017; López-Rocha, 2021; Babatunde et al., 2021; Mei & Symaco, 2022).

Corporate sustainability (CS) refers to the incorporation of economic, environmental, and social considerations into business decision-making processes and actions, thereby creating long-term value for all stakeholders while minimizing the negative environmental impact of activities (Elkington, 1998; Ajmal et al., 2018; Bansal et al., 2022) despite the increasing global 'noise' about CS and the need for businesses to incorporate sustainability into their operations to

contribute to the well-being of society (Zeike et al., 2019; Ahmed et al., 2020; Ilyas et al., 2020; Khaled et al., 2021; Hanaysha et al., 2022). Many businesses still struggle to ‘fall in line’, partly due to shallow knowledge and understanding of its principles (Menon & Suresh, 2020; Kumar et al., 2020).

Hermann and Bossle (2020) define “entrepreneurial-oriented sustainability education” as an education that seeks to promote sustainable development objectives across educational programs, while implicitly addressing complex community problems through the development of solutions that can change the ways businesses and consumers relate to sustainability issues. By merging EE with sustainability knowledge, individuals can develop their entrepreneurial skills and mindset, equipping them with the right KSAs needed to start and manage businesses while being socially responsible (Wong et al., 2022; Joshi et al., 2023). This makes it imperative that HEIs include sustainability in their programmes, courses, and disciplines, including EE to prepare students for future responsibilities as well as produce a new generation who are committed to building a sustainable future while doing business (Wu & Shen, 2016; Weybrecht, 2017; Sulphrey, 2019; García-Feijoo et al., 2020). Nonetheless, it should be noted that HEIs face multiple challenges in teaching sustainability-related courses ranging from insufficient knowledge to educational tools and pedagogy, among others. (Leal Filho et al., 2020; Menon and Suresh, 2020).

Research indicates that there are still gaps in understanding the best pedagogical strategies for integrating entrepreneurship and sustainability in university curricula (Fichter & Tiemann, 2018; Hermann & Bossle, 2020). The issue is that there aren't many resources (such teaching methods, learning frameworks, and tools) available to teachers who want to teach sustainability in entrepreneurship. Several aspects, including delivery, instructional approaches incorporating interdisciplinary learning, and context, further worsen this problem (Hermann & Bossle, 2020). Furthermore, Hsu & Pivec (2021) asserted that sustainability has not received as much attention in programs as subjects like creativity and strategic implementation in entrepreneurship education. It is critical to evaluate the role that entrepreneurship education plays in preparing the next generation of entrepreneurs who will create value for stakeholders and the environment, not just shareholders, as the program picks up steam in higher education institutions across the globe (Garcia et al., 2019). By looking at the corpus of research already done on the topic, this systematic literature review seeks to close these gaps by investigating how EE can support business sustainability. The goal of this systematic literature study is to pinpoint tactics that HEI may use to include business sustainability into its entrepreneurship teaching programs.

Therefore, the review aims to find ways to promote CS using entrepreneurship education as a vehicle. Specifically, the paper aims to address three research questions: (a) What are the strategies to incorporate corporate sustainability into HEIs entrepreneurship programmes? (b) How can EE be an effective tool to develop sustainable businesses? (c) What are the challenges of fostering CE through EE in this current era? By synthesizing these findings, the review seeks to highlight the critical role of EE in developing active, informed, and responsible entrepreneurs who can drive the transition towards more sustainable business practices.

2. Methodology

For this systematic review, data collection and analysis were conducted methodically, following the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) standards (Page et al., 2021; Bamiro et al., 2023). Initially, we developed a search strategy, a review methodology, and explicit inclusion and exclusion criteria. For this evaluation, articles published between 2013 and 2024 were selected to include the most recent and pertinent studies in the fields of corporate sustainability and entrepreneurial education.

2.1 Search Parameters and Strategy

The theme area, publishing language, publication period, and genre of literature were all included in the search parameters that were used (Fajrie et al., 2024; Raimi et al., 2024). Our primary search focused on English-language literature related to the subject, with a particular emphasis on entrepreneurship, education, and sustainability. The publications' temporal scope covered the years 2013 through 2024. An exploration of the Scopus database was conducted to collect scholarly articles and online repositories focused on the interaction between entrepreneurship education and corporate sustainability.

The Scopus database was searched through the keywords, entrepreneurship education ‘AND’ corporate sustainability ‘OR’ sustainable business model ‘OR’ sustainable entrepreneurship. This strategy will enable the combination of entrepreneurship education and corporate sustainability, incorporating sustainable business models and sustainable entrepreneurship as separate keywords in the result, which yielded 1207. Scopus, the most comprehensive and extensive peer-reviewed article database in academia, serves as a database for indexed scientific and/or academic documents and was therefore chosen for this systematic literature review. It is known for its broad coverage of journals across diverse disciplines, offering a comprehensive view of academic output beyond traditional journal articles, and is particularly suitable for interdisciplinary research (Rosário & Raimundo, 2024).

2.2 Inclusion and Exclusion Criteria

Article titles and abstracts were scrutinized as part of the selection process to determine their relevance to the study's topic (Rus et al., 2023; Utaminingsih et al., 2023). Articles that did not answer any of the research questions, were conference papers, did not relate to the relationship between entrepreneurship education and corporate sustainability, were published in languages other than English, or were duplicate publications, were not included in the final compilation. Articles that met the inclusion criteria at various points were considered for additional examination (Komalasari et al., 2023). The methodology, findings, and discussion sections of these papers were carefully evaluated to determine if they adequately addressed the research questions. Forty-three articles were considered suitable for the investigation.

Table 1. Inclusion and exclusion criteria

Criteria	Inclusion	Exclusion
Article language	English	Non-English
Year	2013 and above	Below 2013
Paper type	Peer-reviewed articles	Conference paper, book, book chapters, online articles
Educational domain	Higher education institutions	Non-Higher Education institutions

2.3 Selection Criteria

Initially, the term "entrepreneurship education" yielded 1207 articles. A total of 139 articles were obtained once the keywords were reduced to include corporate sustainability and other relevant keywords. After the first round of exclusion—the removal of duplicates—86 articles remained for additional review based on their abstracts and titles. The 85 articles were then selected for a thorough examination of their complete texts. The methodology, findings, and discussion sections of these selected publications were examined to assess their relevance to answering the study questions.

Several exclusion criteria were used to ensure the caliber and relevance of the selected articles. These included the removal of conference proceedings, books, and articles that had no bearing on corporate sustainability and entrepreneurship education at HEI, as well as additional duplicates. After a thorough process, 43 papers were identified as relevant and added to the systematic literature review. Relevant data were extracted from the selected studies, including author names, publication year, research methodology, conclusions, and implications. For the sake of clarity and convenience in analysis, the data were arranged methodically in a consistent format (Utaminingsih et al., 2023; Salisu et al., 2024). The synthesized findings from the chosen papers provided a comprehensive overview of how entrepreneurship education and corporate sustainability interplay with each other. Fig. 1 represents the PRISMA flow diagram of included articles.

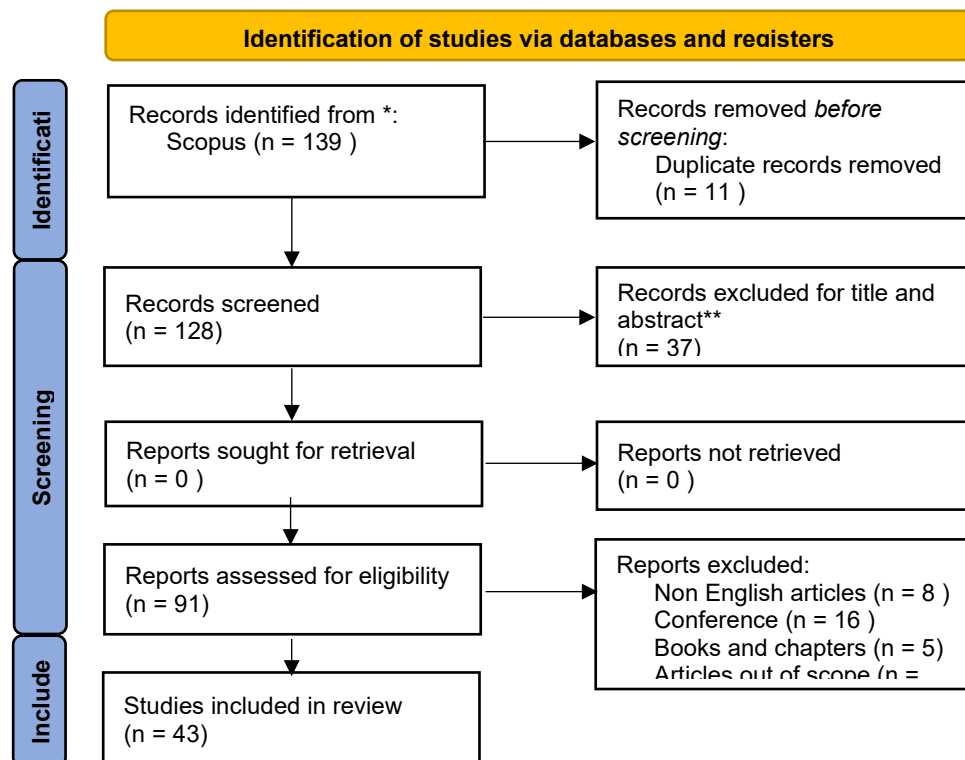


Fig. 1. PRISMA flow diagram

3. Results

This phase included the analysis of the subject's evolution in research interest over time, the main research areas where it has been studied, the authors' countries of affiliation where the theme has been discussed more widely, the main publications on the subject, and the central papers and their authors on the theme of corporate sustainability and entrepreneurship education. All of these were conducted in consideration of the original research question. The next sections present the data analysis based on the above data collection outcomes to date, including the year of publication, research methods, authors' nationalities, most pertinent sources, and authors' affiliations.

Table 2. Data extraction table

S/N	Authors & Years	Methodology	Country of authors' affiliations	Subject Area	Journals	Strategy identified
1	Hermann & Bossle (2020)	Qualitative Review	Norway and Brazil	Sustainable education	Journal of Cleaner Production	Collaborations, training
2	Strachan (2018)	Qualitative Review	UK	Education	Discourse and Communication for Sustainable Education	collaboration of ESD
3	Wyness & Jones (2019)	Quantitative Survey questionnaire	UK	Education	Journal of Small Business & Entrepreneurship	Collaboration
4	Chakraborty et al. (2019)	Qualitative Review	India	Management Studies,	International Journal of Sustainable Development	Collaboration/ stakeholder engagement
5	Sepetis et al. (2020)	Mixed Survey and Review	Greece	Management Studies,	Journal of Human Resource and Sustainability Studies	Collaboration /training
6	Hermann et al. (2022)	Quantitative Action research	Norway and Brazil	Management studies	Educational Action Research	Problem-based learning
7	Kotla & Bosman (2023)	Quantitative Survey questionnaire	USA	Education	Trends in Higher Education	Skills development, supportive learning environment
8	Hsu & Pivec (2021)	Qualitative Interview	Taiwan and Austria	Management	Sustainability	Curriculum review
9	Igwe et al. (2021)	Qualitative Interview	UK and Nigeria	Management	The International Journal of Management Education	Innovative Teaching Pedagogy
10	Choi & Markham (2019)	Qualitative Review and interview	Korea and USA	Management	Journal of Open Innovation: Technology, Market, and Complexity	Curriculum review and collaboration
11	Foucrier & Wiek (2019)	Qualitative Review	USA and Germany	Sustainable education	Sustainability	Curriculum review
12	Rickhoff-Fischer et al. (2021)	Qualitative Interview	Germany	Education	Sustainability	Curriculum Review and collaboration

13	Wyness et al. (2015)	Quantitative Web based Survey	UK	Education	Education+ Training	Innovative Teaching Pedagogy
14	Gyamfi (2014)	Quantitative Survey	Ghana	Management studies	British Journal of Education, Society & Behavioural Science	Curriculum review / experiential learning
15	Bozward et al. (2023)	Qualitative Review	UK	Education	Industry and Higher Education	-
16	Kazemi et al. (2020)	Qualitative Review and interview	Iran	Management studies	Malaysian Management Journal	-
17	Kurotimi et al. (2017)	Qualitative Review	Nigeria	Management studies	International Journal of Mechanical and Industrial Engineering	-
18	Soares et al. (2021)	Qualitative Case study	Brazil and Portugal	Management studies	The International Journal of Management Education	-
19	Mets et al. (2021)	Qualitative Review	Estonia	Management studies	Administrative Sciences	-
20	Nano et al. (2024)	Mixed Interview and Survey	Albania	Management studies	Administrative Sciences	Collaboration/ stakeholder involvement
21	Tennakoon et al. (2020)	Qualitative Review	Sri lanka	Management studies	Australian Journal of Business and Management Research	Curriculum review and innovation
22	Makki et al. (2020)	Qualitative Systematic review	Saudi Arabia	Engineering	Journal of Risk and Financial Management	-
23	Mavlutova et al. (2020)	Mixed Comparative analysis And survey	Latvia	Management studies	WSEAS Transactions on Environment and Development	Innovation
24	Oyebanjo & Tengeh (2021)	Qualitative Systematic literature review	South Africa	Management studies	World Review of Entrepreneurship, Management and Sustainable Development	Curriculum review
25	Rauf et al. (2021)	Qualitative Systematic literature review	Indonesia	Management studies	Cogent Arts & Humanities	Curriculum review
26	Stefani et al. (2020)	Qualitative Review	Germany Italy and France	Management studies	European Journal of Innovation Management	Curriculum review
27	Baden & Parkes (2013)	Qualitative Case study and content analysis	UK	Management studies	Journal of Management Development	Innovation
28	Awotunde & Westhuizen (2021)	Quantitative Survey questionnaire	South Africa	Management studies	International Journal of Innovation and	Innovation

29	Warhuus et al. (2017)	Mixed Survey and interview	USA and Denmark	Management studies	Sustainable Development Education+ Training	Innovation
30	Pascucci et al. (2021)	Qualitative Systematic literature review	Spain	Social Sciences	Sustainability	Innovation
31	Sannino et al. (2020)	Qualitative Critical analysis	Italy	Management studies	Management Decision,	Innovation
32	Gigauri et al. (2022)	Qualitative Review	Georgia	Management studies	International Journal of Innovative Technologies in Economy	Innovations and curriculum review
33	Sharma et al. (2021)	Qualitative SLR	India	Pure and applied Science	World Journal of Entrepreneurship, Management and Sustainable Development	Policy
34	Langrafe et al. (2020)	Quantitative Survey	Brazil and Netherlands	Management studies	The Bottom Line	Stakeholder and collaboration
35	Arslan et al. (2023)	Qualitative Semi structured interview	Finland Oman and UK	Management studies	International Journal of Organizational Analysis	collaborations
36	Suriyankietkaew (2023)	Quantitative Survey	Thailand	Entre education	Journal of Entrepreneurship in Emerging Economies,	-
37	Alodat et al. (2023)	Quantitative Survey	Malaysia, UAE, Qatar, South Africa	Management studies	International Journal of Disclosure and Governance	-
38	Ortiz-de-Urbina-Criado et al. (2022)	Qualitative Descriptive evaluation	Spain	Management studies	Journal of Entrepreneurship in Emerging Economies	-
39	Poza-Vilches et al. (2023)	Qualitative Case study	Spain	Management studies	Diagnosis of Blue Journal of Teacher Education for Sustainability	Curriculum review
40	Baltador & Grecu (2023)	Qualitative Review	Romania	Management studies	Studies in Business and Economics	Curriculum review
41	Sánchez-Hernández & Maldonado-Briegas (2019)	Qualitative Case study	Spain	Management studies	Sustainability	-

42	Lepik, & Sakarias (2023)	Qualitative descriptive and an exploratory study design	Estonia	Management studies	Management & Marketing	-
43	Hoppe & Namdar (2023)	Qualitative Review	Sweden	Management studies	Entrepreneurship Education and Pedagogy	-

2.1 Year of Publication

A growing interest in corporate sustainability and entrepreneurial education has been observed in recent years, as indicated by a study of the yearly publications of the examined articles (see Figure 2). Just 16% (7) of the publications on these subjects were published between 2013 and 2018. Nonetheless, there was a notable rise in the quantity of publications produced beginning in 2019. This increase is a sign of growing interest in these fields among academics and practitioners. The trend reached its apex in 2021, when ten pieces, the most ever, were published. 2020 and 2023 followed closely, with nine pieces published each. The increasing awareness of the value of incorporating corporate sustainability and entrepreneurship education into modern discourse and practice is demonstrated by this upward trend.

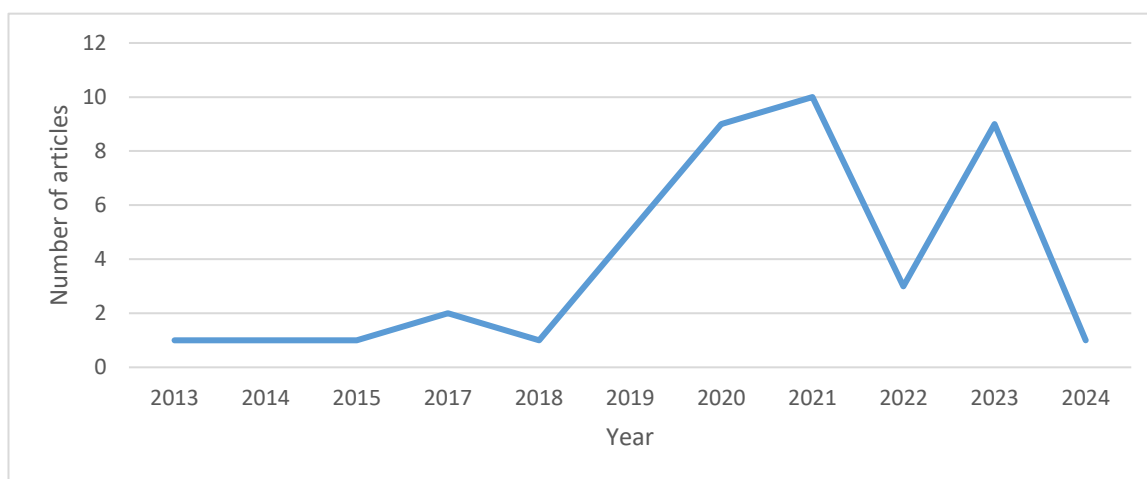


Fig. 2. Yearly publication of articles

2.2 Author's Country of Affiliation

Fig. 3 illustrates the distribution of articles based on the authors' countries of affiliation. Contributions come from authors in 55 countries, highlighting the widespread interest in integrating corporate sustainability into entrepreneurship education. The United Kingdom (UK) leads with the highest number of contributions, totaling seven articles. Spain, Brazil, and the USA each follow with four articles. The figure reveals that most articles have authors affiliated with European institutions. This trend can be attributed to the European Union's strong policies on sustainability (Strachan, 2018). Additionally, Asia has a significant number of affiliated authors, reflecting the growing emphasis on sustainability in the region. It is important to note that the total of 55 countries is reached because some articles have multiple authors with different affiliations. This diversity in contributions underscores the global interest and collaborative efforts in researching corporate sustainability in the context of entrepreneurship education.

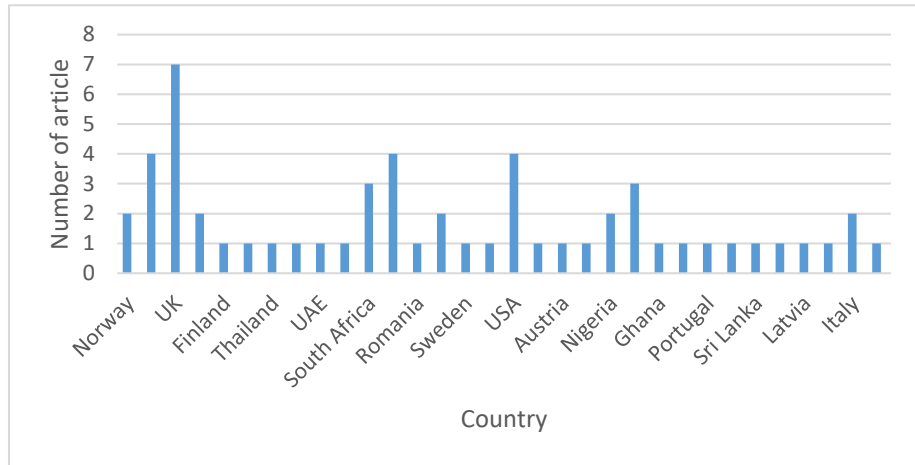


Fig. 3. Authors' areas of specialization

To ensure consistent results, the primary authors' areas of specialization were examined. Figure 4 illustrates the distribution of articles by authors' areas of expertise. The analysis revealed that 73% of the articles were authored by individuals specializing in the fields of management and administration, encompassing a range of disciplines, including business administration and economics. Meanwhile, 21% of the authors were from the educational sector, and only 2% represented each of the fields of engineering, social sciences, and pure and applied sciences. This distribution indicates a noticeable lack of interest in the concepts of corporate sustainability and entrepreneurship education among researchers outside of management and educational studies. This limited engagement suggests that these important topics have not yet gained widespread recognition or prioritization in other academic disciplines.

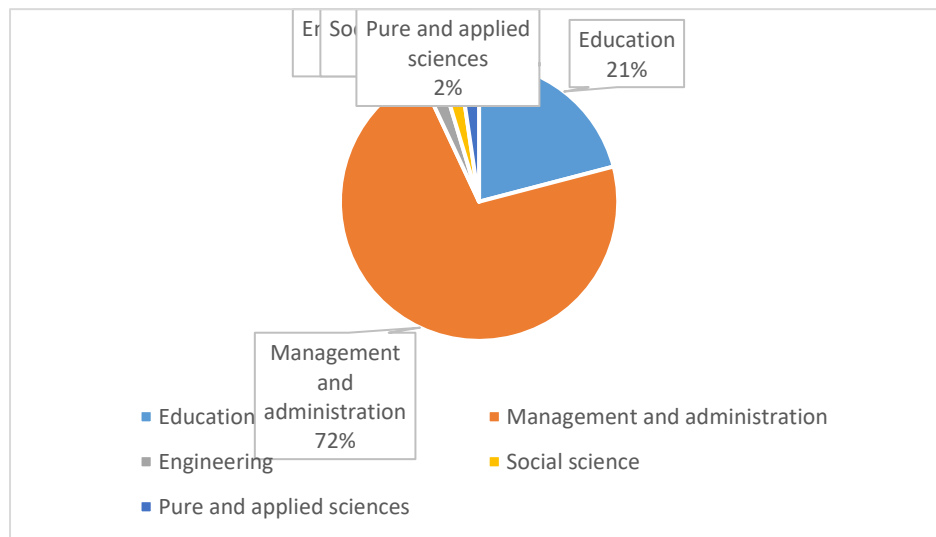


Fig. 4. Authors' areas of specialization

2.3 Most Sourced Journals

To gain insight into the most frequently referenced journals, we analyzed those with more than two articles. For each of these journals, we included the SCImago Journal Rank (SJR) and h-index values, as shown in Table 2. The analysis revealed that the journal "Sustainability" has the highest number of publications, with five articles contributing to its total. This highlights the journal's significant contributions to the fields of entrepreneurship education and corporate sustainability. Other journals listed in the table each have two articles, while those not included have only one article. This distribution underscores the prominence of "Sustainability" in the relevant academic discourse compared to other sources.

Table 3. Distribution of journals with more than two publications

Journal	Number of articles	SJR	H-index
Sustainability	5	Q1	109
The International Journal of Management Education	2	Q1	34
Education+ Training	2	Q2	71
Administrative sciences	2	Q2	23
Journal of Entrepreneurship in Emerging Economies	2	Q1	21

2.4 Distribution of Authors with More Than Two Publications

Authors with names appearing in more than two publications were analyzed, as illustrated in Table 3, to highlight their contributions to the fields of entrepreneurship education and corporate sustainability. This table highlights authors who have made significant scholarly contributions, each with a minimum of two published articles. The repeated presence of these authors in the literature underscores their influence and active role in advancing research and knowledge in these areas.

Table 4. Authors list with more than two articles

Authors	Country of affiliation	Prevailing research area
Hermann R. R	Norway	Sustainability education, entrepreneurship, maritime shipping
Bossle M. B	Brazil	Eco-innovation, Sustainable Supply Chain
Wyness L.P	UK	Entrepreneurship education
Jones P.	UK	Entrepreneurship education

2.5 Cluster Analysis

Once we refined the list of records on Scopus, which included all previous dimensions, we used VosViewer (Waltman et al., 2010) to load this list to create an analysis that clustered different research areas related to this research line. We decided to use VosViewer for its graphical and intuitive representation, where the most important keywords are clearly visible in the representation area. Cluster mapping is an important analysis technique that provides a graphical representation of research lines, where similar topics, summarized by their tracking keywords, are regrouped into wider categorizations in each thematic cluster. Several themes emerged from the VOSviewer analysis. However, the most pertinent themes related to our research questions and objectives were further selected for discussion.

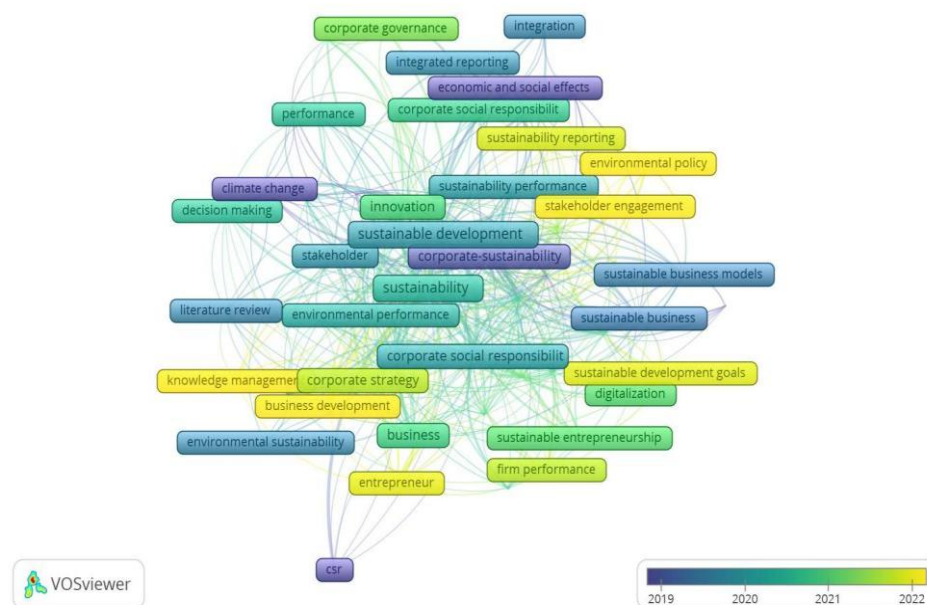


Fig. 5. Corporate sustainability and entrepreneurship education literature from Scopus database using VOS viewer

4. Discussion

4.1 Innovation

There is a vast array of approaches to incorporating corporate sustainability into entrepreneurship education. One theme identified from the cluster analysis is innovation. Innovations in entrepreneurship education teaching can take the form of pedagogical processes or technological innovations. Mavlutova et al. (2020) assert that traditional teaching methods in EE cannot stimulate entrepreneurial intention (EI) in students to effect change. This requires different actions, such as addressing policy and institutional failures (Oyebanjo & Tengeh, 2021), improving the competence of EE trainers, and involving them in curriculum development (Rauf et al., 2021). To develop innovation and improve access to resources, new education tools and revised syllabi are necessary for the future of teaching in entrepreneurship education (Stefani et al., 2020). Therefore, Baden & Parkes (2013) and Awotunde & Westhuizen (2021) concluded that for effectiveness, experiential learning, case study workshops, and action-oriented approaches are necessary to enable students to develop their entrepreneurial intention and mindset. In addition, Warhuus et al. (2017) findings added that EE programmes should also have a multidisciplinary approach in the context of trainers, and on the learners' part, the learning should be collective.

According to Hermann et al. (2022) research, integrating a problem-based learning framework into entrepreneurship education is a creative approach to encourage sustainability among college students. Finally, Wyness et al. (2015) recommended that instructors of entrepreneurship reevaluate their teaching strategies to incorporate systems thinking as a more comprehensive educational perspective. The authors conclude by urging entrepreneurship instructors to update their curricula to incorporate the fundamental elements of economic, social, environmental, and, more recently, ethical sustainability. Utilizing the technological innovation approach as a strategy for integrating corporate sustainability into entrepreneurship education. Pascucci et al.'s (2021) study confirmed that the use of technology is a valuable tool for ensuring compliance with environmental standards in corporate sustainability. Sannino et al.'s (2020) study further added that the use of technology in business is not tied to any demographic factors, except for experience and years of operation. In embedding sustainability into EE, Gigauri et al. (2022) recommended that experiential learning, collaborative pedagogical models, and the integration of digital technologies are valid approaches in entrepreneurship teaching, where practical experience is combined with theory and learners take shared responsibility for learning from experience.

Gigauri et al. (2022) agree that higher education institutions (HEIs) can facilitate a transition towards sustainability by incorporating sustainability principles into their research, teaching, and institutional operations. Sharma et al. (2021) supported the argument that within the institutional framework domain, higher education institutions (HEIs) can support sustainable entrepreneurship development through the right policies and institutional practices. As a matter of importance, Gigauri et al. (2022) emphasize that sustainability in Environmental Education (EE) in Higher Education Institutions (HEIs) will enhance the awareness, skills, and knowledge of graduates, who will become leaders in a dynamic world. They suggested that for effectiveness and sustainability, education should be adopted using an integrative approach, which encourages interdisciplinary and cross-curricular initiatives. Additionally, Strachan (2018) asserted that higher education institutions (HEIs) can successfully integrate corporate sustainability into their curriculum by combining entrepreneurship for sustainable development with entrepreneurship education. By utilizing similar instructional strategies from the two disciplines, this integration equips students with the skills necessary to evaluate entrepreneurial endeavors from a sustainability perspective, promoting a shift in values toward sustainable development. Higher Education Institutions (HEIs) can foster a new generation of sustainable entrepreneurs by equipping them with the knowledge, principles, and frameworks necessary for informed decision-making in sustainable business operations.

4.2 Stakeholder Involvement

According to Chakraborty et al. (2019), involvement from all stakeholders is essential for achieving sustainable development, as a single entity cannot fulfill this objective. Every stakeholder has a unique role to play and the ability to influence university procedures. Thus, considering a certain set of stakeholders may limit the comprehensive application of sustainable development at universities. Participation by stakeholders in sustainability initiatives promotes sustainable lifestyles and other social behavioral shifts. The government and universities are two important stakeholders that should be included in the model proposed by Nano et al. (2024) to address current impediments and capitalize on opportunities for incorporating corporate sustainability into entrepreneurship education.

The research's case study analysis of three Albanian universities emphasizes the need for further efforts on the part of the government and academic institutions. Governments can establish regulations and allocate resources by actively engaging in this paradigm, and colleges can include sustainability ideas into their research, community outreach, and courses. To develop a generation of entrepreneurs knowledgeable about sustainable practices and ultimately contribute to the long-term well-being of society and the environment, a collaborative approach is vital. A comprehensive understanding of business sustainability in entrepreneurship education is fostered by emphasizing transformational learning techniques, creative pedagogies, and active stakeholder involvement, according to Foucrier and Wiek (2019), who share a similar opinion.

4.3 Curriculum Review

Most approaches identified from the reviewed articles involve reviewing HEIs' curricula to provide room for the incorporation of corporate sustainability. Hsu & Pivec (2021) argue that incorporating detailed plans into curricula that integrate sustainability into entrepreneurship education could be a crucial first step in preparing future entrepreneurs. It is essential to emphasize teaching strategies that link entrepreneurship education to the Sustainable Development Goals (SDGs) and motivate students to become more than just thinkers by launching start-ups to achieve these goals. In addition, Choi & Markham (2019) state that a corporate entrepreneurship education curriculum must include the following elements to be successful in introducing campus-wide entrepreneurship education to raise awareness of corporate sustainability: (1) entrepreneurial leadership; (2) faculty champions; (3) student-focused policies; (4) engagement with the community; and (5) a decentralized, autonomous structure of entrepreneurship programs. According to Gyamfi's (2014) research, to fully reap the benefits of entrepreneurship education as a tool for economic growth, the teaching style of university courses on entrepreneurship should be modified to enhance experiential learning.

According to Tennakoon et al.'s (2020) study, a two-pronged approach should be employed to enhance entrepreneurship education within the higher education system. On the one hand, to ensure that entrepreneurship education can adapt to global, technological, and market changes, academic institutions must develop relevant curricula, course materials, and teaching methodologies that are not only current but also globally competitive. This way, the institutions can monitor in-demand areas of specialization and modify their offerings to the local context while maintaining their distinctive international flavor. Conversely, the official higher education system should adopt a more global perspective, supporting and enabling students to innovate in business and produce fresh insights that the sector can utilize. In the Poza-Vilchese et al. (2023) study, HEIs added "value" to their vision and mission within the context of their curricula; they concluded that students' "personal values," which shape their perspectives on sustainability, have a significant impact on sustainable entrepreneurship. Baltador and Grecu (2023) also proposed a sustainable entrepreneurship education pedagogy that provides the necessary knowledge and skills related to sustainability, thereby encouraging students at higher education institutions (HEIs) to adopt sustainable business practices.

4.4 Collaborations

Collaborations are another key strategy that this study revealed. Collaborations between higher education institutions (HEIs) and the private sector, or between government establishments and HEIs, may fall under this category. To facilitate real-world problem-solving among students and other learning actors, Hermann and Bossle (2020) proposed a framework for corporate sustainable entrepreneurship education. This framework is based on the application of active learning pedagogy and involves close collaboration between universities and external stakeholders. Additionally, they emphasize the need for greater industry-university collaboration to qualify and enhance the integration of the framework. Universities can offer valuable tools for integrating entrepreneurship into sustainability education, and industry associations, businesses, public institutions, and non-governmental organizations can collaborate with communities to develop targeted educational programs. The results of Wyness and Jones (2019), which suggest that interaction and collaboration between the two disciplines are necessary to foster this progress and strengthen their potential for collaboration and exchange of best practices, provide support for this.

According to research by Sepetis et al. (2020), there are significant similarities between Greek students' and other students' and managers' corporate social responsibility orientations. Greek companies, therefore, have a significant opportunity to step up at this point by allowing students to participate in their corporate social responsibility programs. According to Rickhoff-Fischer et al. (2021), a collaborative curriculum on corporate sustainable education is obviously needed, as it forces higher education institutions (HEIs) and their ecosystem to co-create knowledge. They believe that active knowledge and experience sharing throughout higher education institutions (HEIs) within the quadruple helix is a prerequisite for success. Arslan et al. (2023) concur with other academics that successful policy creation requires cross-sector coordination, with defined criteria concerning sustainable energy efficiency (EE).

4.5 Entrepreneurship Education and Sustainable Business

This review examines the connection between sustainable business and entrepreneurship education, as well as the role of entrepreneurship in supporting sustainable business enterprises. Bozward et al. (2023) claim that entrepreneurship and enterprise education significantly enhance research, instruction, and information sharing, making them effective tools for creating long-lasting companies. According to the study, this type of education can have an influence on research quality up to 46 times greater than that of other management disciplines. It can also enhance teaching outcomes and student performance while strengthening institutional knowledge-sharing measures. This all-encompassing effect stimulates creativity, equips students with practical skills, and fosters industry-academia collaboration, thereby establishing an environment that supports the development of resilient and sustainable firms.

According to Kazemi et al. (2020), entrepreneurship education effectively fosters sustainable enterprises by addressing key elements at four levels and cultivating a core culture of sustainability. Fundamentally, it fosters a culture of sustainability by ensuring adherence to the law, protecting resources, promoting social engagement, implementing green management practices, and optimizing the efficient use of human resources. Going forward, it prioritizes customer-

centricity, effective procedures, and social justice. Ultimately, this strategy focuses on the methods, procedures, and objectives necessary for sustainable business, yielding both social and economic benefits. This all-inclusive model highlights the importance of integrating sustainability into every aspect of business education to achieve long-term success and a positive social impact. Kurotimi et al. (2017) found that EE has a beneficial effect on entrepreneurship participation by providing people with the necessary skills and competencies, which in turn promotes economic growth and development. Nonetheless, certain studies suggest that the efficacy of EE in generating prosperous entrepreneurs is contingent upon the innate desire and entrepreneurial inclination of the individuals involved.

According to Soares et al. (2021), family firms that participate in corporate entrepreneurship education (CEE) are likely to experience growth, increased sustainability, and a more seamless succession plan. CEE can also help family businesses become more competitive. In addition, Suriyankietkaew (2023) highlights that for CS to realize the anticipated benefits of implementing sustainable business practices—namely, strong financial performance and stakeholder satisfaction—enterprise leaders must develop a strong vision that is communicated to staff members. While Ortiz-de-Urbina-Criado et al. (2022) argue that businesses and management of HEIs can contribute to achieving the 2030 SDGs agenda through their sustainable practices, Alodat et al. (2023) conclude that companies with sustainable practices are more transparent in their financial reporting, thereby ensuring the satisfaction of various stakeholders.

Entrepreneurs will be relevant through innovative business models (Oyebanjo & Tengeh, 2021). Therefore, Pascucci et al. (2021) concluded that sustainable entrepreneurial culture programmes in HEIs have a positive effect on students' attitudes toward social responsibility and empower them to contribute to a better future. It implies that sustainability embedded in EE will increase student awareness of the possibilities of ethical business and the possibility of becoming sustainable intrapreneurs (Baden & Parkes, 2013) because one of the aims of embedding sustainability into the curriculum is to provide alternative business models (Rauf et al., 2021) and create a positive impact on students' mindset about CS. In addition, Sánchez-Hernández and Maldonado-Briegas (2019) concluded that students will be more socially responsible if exposed to sustainable entrepreneurial culture programs in higher education institutions (HEIs), and Lepik and Sakarias (2023) affirm that the incubator, which is part of the HEIs' ecosystem, can be used to encourage enterprises to practice sustainability. Even at the secondary school level, Hoppe and Namdar (2023) argue that EE has the transformative power to foster sustainable entrepreneurship.

4.6 Challenges of Incorporating CS to the EE Curriculum

The need for updated or creative competence models to develop green transformation skills, difficulties coordinating and organizing educational content to align with sustainability goals, and a lack of standardized assessments to gauge the influence on students' intentions and attitudes are some of the challenges faced by sustainable entrepreneurship education, according to Mets et al. (2021). Finding the best educational levels and specialized entrepreneurial courses to teach sustainable practices remains a significant challenge. According to Nano et al. (2024), the primary obstacles to entrepreneurial and sustainable courses are the gaps in legislation and the absence of government funding. On the other hand, universities can benefit from digital innovation and effective human resource management by enhancing their internal environment. The common obstacles faced by most developing nations include a lack of resources, insufficient entrepreneurial skills among lecturers, inadequate stakeholder participation, weak government policies, and the industry-university gap (Tennakoon et al., 2020). Makki et al. (2020) noted that obstacles to integrating corporate sustainability into entrepreneurship education include government regulations, cultural differences, dominant industries, a lack of incentive and support mechanisms, bureaucracy, costs associated with green initiatives, a lack of market knowledge and subjective awareness, a lack of investors, and limited private sector involvement. The adoption of the previously identified strategies can be an effective way to incorporate corporate sustainability into entrepreneurship education.

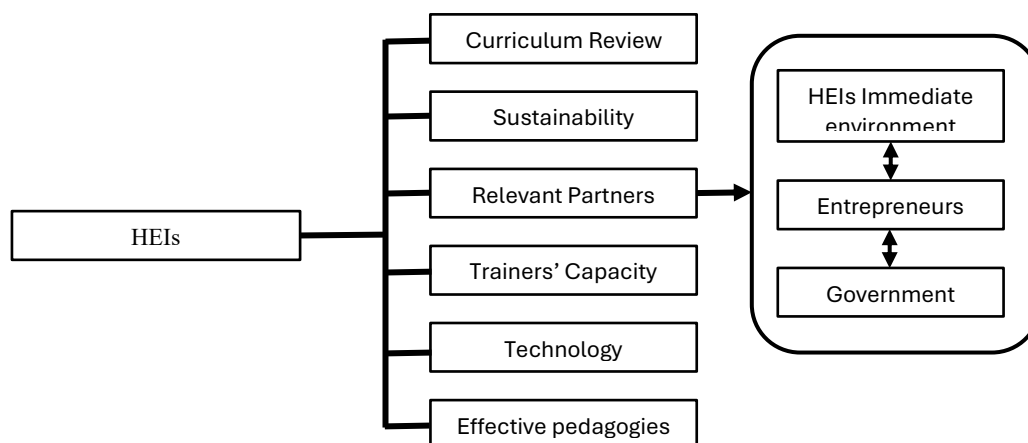


Fig. 6. Strategy for promoting CS through EE

In the digital age, the introduction of technology provides students with opportunities to learn and collaborate beyond their boundaries, gaining more global experience and adapting to their local environment (Haleem et al., 2022). Secondly, Trainers' capacity can be improved by sharing experiences with colleagues in different higher education institutions (HEIs), learning new pedagogies and technologies for the effective delivery of education programs (Kumar et al., 2013). Thirdly, innovation, which is one of the key elements of CS, can be achieved from the introduction of technology, especially with the adoption of AI in HEIs as well as business environments (Bahoo et al., 2023).

5. Conclusion

Based on the review, we can conclude that corporate sustainability is an emerging field of research that warrants increased attention and awareness. Some higher education institutions (HEIs) and entrepreneurs have initiated the adoption of sustainability principles, but the lack of the right knowledge, resources, and expertise challenges them. Entrepreneurship education is a viable tool for producing sustainable entrepreneurs with a sustainable awareness and mindset, the necessary skills and competencies, who will not only focus on profit but also consider socio-economic and environmental issues in their business model. The lack of standardized assessments, legislative gaps, and insufficient governmental funding for entrepreneurial and sustainable courses are among the challenges facing the incorporation of corporate sustainability principles into entrepreneurship education in the digital age, as well as the inability to tap into its immense opportunities. Ultimately, innovative teaching processes, stakeholder engagement, collaboration, and curriculum review are effective methods for incorporating corporate sustainability into entrepreneurship education programs within higher education institutions (HEIs). This research suggests that the government and other stakeholders must pay attention to and act responsibly by developing and implementing policies that foster sustainable businesses, thereby helping to save our planet. Businesses must take bold steps to incorporate sustainable practices into their business models, as it is both profitable and beneficial to them and the public, including their customers. Moreover, Higher Education Institutions (HEIs) should be dynamic and adopt sustainable practices in the digital age to deliver Environmental Education (EE) on their various campuses. The absence of empirical data to support the above conclusions is a limitation of the study. The limited literature on corporate sustainability is another limitation to enriching our understanding of the corporate sustainability (CS) concept and its dynamics. Furthermore, for further studies, researchers can investigate the role of gender in corporate sustainability. The challenges faced by SMEs are known in the literature. Therefore, further studies can identify effective ways for SMEs to adopt sustainability practices in their businesses, despite the known challenges.

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Conflict of Interest

The authors declare no conflicts of interest.

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