

HOW BUSINESS STUDIES ADDRESS SUSTAINABILITY CONSCIOUSNESS: A BIBLIOMETRIC ANALYSIS

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Abstract:

Background: Sustainability has emerged as one of the most critical global challenges, making its integration into business studies, essential. Business studies play a crucial role in shaping leaders amid escalating global challenges, such as climate change, inequality, and resource degradation. However, current curricula often emphasize technical knowledge over the deeper ethical and cognitive dimensions required for sustainable decision making. Traditional business programs have been criticized for creating a disconnect between business practices and ethical accountability. Furthermore, business curricula often fail to fully integrate the ethical shifts necessary to internalize sustainability as a core value.

Purpose: To map the trends, patterns, and gaps in the literature on sustainability consciousness in business studies, with a particular focus on identifying how this concept has been addressed in previous research.

Design/methodology/approach: A bibliometric analysis was conducted on 2,767 Scopus-indexed publications (1993–2022) using VOSviewer to identify trends and gaps in sustainability consciousness research in business studies. The problem formulation was guided by the PICO framework to define the key elements of the research question in academic research studies.

Findings/Result: Although sustainability topics in business studies are widely studied, research on “sustainability consciousness” remains underexplored. Keywords such as ‘consciousness’ and ‘awareness’ are absent from the central clusters, highlighting a significant gap in the literature. This finding indicates that, despite extensive research on sustainability, there is a limited focus on addressing the concepts of consciousness and awareness within business studies research.

Conclusion: There is a significant gap in integrating sustainability consciousness into business education. Current curricula lack an emphasis on the ethical, cognitive, and affective aspects of sustainability.

Originality/value (State of the art): This study is one of the first to map the research landscape of sustainability consciousness in business studies. By identifying this gap, this study contributes to the growing body of knowledge by highlighting the urgent need for a holistic approach that emphasizes sustainability consciousness in business education and practice.

Keywords: bibliometric analysis, business study, curriculum integration, sustainability awareness, sustainability consciousness

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INTRODUCTION

Sustainability has emerged as one of the most pressing global challenges of the 21st century. As the world faces unprecedented environmental degradation, climate change, and rising social inequalities, the need for sustainable solutions has become increasingly urgent. The 2030 Agenda for Sustainable Development, encompassing 17 Sustainable Development Goals (SDGs), seeks to address pressing issues such as environmental degradation, climate change, and growing social inequalities. However, despite the ambitious vision outlined in the SDGs, progress toward achieving these goals has been slow (Ghosh & Pearson, 2025). According to the 2024 SDGs Report, only 17% of the SDG targets are on track, with nearly half showing minimal or moderate progress and over one-third stalling or regressing (UN DESA, 2024).

Over a billion people live in multidimensional poverty (OPHI & UNDP, 2024), and more than 700 million face hunger and food insecurity (FAO et al. 2024), with approximately 295 million people now experiencing high levels of acute food insecurity (FSIN & GNAFC, 2025). Environmental issues, including the rapid loss of biodiversity driven by human activities, are central to this crisis. Approximately 25% of animal and plant species are threatened, with agriculture as the primary driver of biodiversity loss (Brondízio et al. 2019). The growing environmental footprint of economic development has made sustainability not only a moral imperative but also an essential component of long-term business strategy and growth.

In the face of these global crises, the business sector plays a critical role in shaping solutions. However, research has shown that business practices have often been a source of unsustainability, focusing on short-term profits without considering environmental and social impacts (Bansal et al. 2021; Hassan et al. 2025; Kopnina, Zhang, et al. 2024; Liu et al. 2019). Rapid economic growth has led to a substantial increase in greenhouse gas emissions and the overexploitation of natural resources, further exacerbating environmental challenges (IPCC, 2023). Moreover, economic behavior often prioritizes profit maximization at the expense of environmental and social responsibilities, contributing to unsustainable growth models (Gabaix & Laibson, 2017; Høyer & Næss, 2001a; Mella & Pellicelli, 2017). Current and future business leaders play critical roles in initiating and managing the transition to a

sustainable economy and society (Csillag et al. 2022). Business schools, as institutions that shape future decision-makers, bear a significant responsibility to equip students with the skills and capabilities needed to address complex sustainability issues (Snelson-Powell et al. 2020). Research on Romanian Economics and Business students indicates that education for sustainability influences how future leaders understand and respond to global challenges such as environmental sustainability, social equity, and corporate accountability (Badea et al. 2020). However, in practice, business studies, especially in business schools, have been heavily criticized for offering business students a narrow perspective focused primarily on profit maximization and shareholder wealth (García-Feijoo et al. 2020). In line with this, a study conducted in Egypt suggests that entrepreneurial cognition may hinder the ability to identify sustainable opportunities, as entrepreneurs often prioritize economic profit over environmental and social preservation (Abdelnaeim & El-Bassiouny, 2021). Moreover, a study conducted at a university in Thailand demonstrated that even strong academic performance in business fields does not necessarily correlate with positive sustainability awareness (Fuchs, 2021). Therefore, the reason for this study lies in the pressing need to more effectively integrate sustainability consciousness into business education. Sustainability consciousness is not just about understanding sustainable practices but also about developing ethical awareness that incorporates social and environmental factors into business decisions.

In recent years, business schools have made significant strides in integrating sustainability into their curricula, reflecting the growing recognition of the importance of sustainable business models and the need for leaders to address global challenges through innovation and responsible decision making (Acutt, 2010). This shift is essential, as sustainability is no longer an option but an intrinsic part of business strategy and operations (Laszlo et al. 2010).

However, despite these advancements, business studies have been criticized for inadequately addressing the fundamental causes of sustainability. Traditional business curricula have often been criticized for prioritizing technical skills over the integration of ethical education, creating a disconnect between business practices and moral accountability (Werhane & Freeman, 1999). Moreover, while many programs emphasize technical sustainability practices, they often

neglect the ethical and cognitive shifts necessary for students to fully internalize sustainability as a core value in their professional lives (Csillag et al. 2022; Kopnina, Hughes, et al. 2024; Snelson-Powell et al. 2020). Many business schools also fail to align the rhetoric of sustainability with their actual curricula, resulting in insufficient preparation for future leaders to act responsibly (Snelson-Powell et al. 2020). Business studies often face a paradox between economic growth and ecological sustainability, where traditional curricula prioritize financial profit over minimizing environmental impacts and preserving natural resources (Kopnina, Hughes, et al. 2024).

To address the gap in business education, it is essential to broaden students' perspectives by fostering a shift in consciousness that recognizes the interconnectedness of humanity and the environment (Segovia, 2010). Bonnett (2021) emphasized the importance of comprehensively addressing sustainability issues, with education playing a central role in guiding individuals toward sustainable actions. As Chiang & Chen (2022) highlight, this approach ensures that students internalize sustainability values as part of their professional lives. Gericke et al. (2018) further describe this concept as sustainability consciousness, which is not just about acquiring knowledge and skills but also about cultivating attitudes, behaviors, and values that promote long-term sustainability. In this context, research suggests that a deeper awareness of sustainability leads to more sustainable actions, ultimately contributing to long-term sustainability (Ericson et al. 2014; García-Feijoo et al. 2020; Heaton, 2016).

Accordingly, the key research issue in this study is to map how business studies have integrated sustainability, focusing on the ethical and cognitive shifts required for students to internalize these values in their professional practices. This approach involves evaluating the extent to which the current literature has focused on developing sustainability consciousness within business education. More specifically, it aims to understand the degree to which sustainability consciousness has been integrated into the body of knowledge in the field of business studies.

Given these issues, this study aims to map the trends, patterns, and gaps in the literature related to sustainability consciousness in business studies, with a particular focus on identifying how this concept has been addressed in previous research.

METHODS

This study adopts a bibliometric perspective to analyze the incorporation of sustainability in business studies, with special attention to sustainability consciousness. Bibliometrics is a quantitative approach to studying academic literature through citation data, keyword co-occurrences, and publication trends (Contreras & Abid, 2022; Costa et al. 2017). This approach allows researchers to map the development of knowledge within a specific field, identify research hotspots, and highlight the key themes that have emerged over time. Bibliometric analysis is particularly useful for understanding the structure and evolution of a scientific domain (Aleixandre-Benavent et al. 2018; Liu et al. 2019), and is an appropriate approach for investigating sustainability education and sustainability consciousness in business education programs, which can provide insights into the structure and dynamics of a scientific discipline.

The dataset used in this study was obtained from the Scopus database, which is one of the largest databases for scientific research and contains a large collection of refereed journals in diverse areas of knowledge. The search mainly focused on articles, conference papers, and book chapters published from 1993 to 2022. These papers were selected for their direct application to environmental sustainability education in business and the incorporation of environmental sustainability consciousness in business programs. The dataset starts from 1993, which is symbolically significant as it marks the beginning of international efforts for sustainable development education, highlighted by the first-ever explicit use of the slogan "education for sustainable development" in the Copernicus University Charta (Berchin et al. 2021). This declaration represents a pivotal moment in the global recognition of the importance of integrating sustainability principles into education. As such, this study began data collection from this year to capture the evolution of sustainability education within business programs and its intersection with sustainability consciousness.

The literature search process was organized according to the problem formulation methodology based on the PICO framework, which is widely used to define the key elements of a research question in academic research (Schardt et al. 2007). The PICO (Population, Intervention, Comparison, Outcome) framework is a widely-used systematic tool for phrasing focused

and clear clinical questions, particularly in the area of Evidence-Based Medicine (EBM), however it can be used across several academic disciplines. This enables researchers to differentiate the important aspects of a question. Once these parts are straightforwardly articulated, literature searching becomes easier, as it is assumed that PICO can inform which main terms should be included in a search strategy to address the relevant search results (Schardt et al. 2007). The PICO framework was applied to develop relevant search keywords to capture the breadth of the literature within the scope of sustainability education in business programs, as shown in Table 1.

The PICO framework structured the search by clarifying the focus on higher education institutions that teach business and entrepreneurship, particularly as it pertains to sustainability. The keywords derived from this framework were employed to extract relevant publications from the Scopus database, ensuring a comprehensive and targeted search for literature connected to the research questions of this study. In this context, the concept of "consciousness" in this context closely suggests an understanding of "awareness" and a broad and sophisticated understanding of sustainability in business system education.

Relevant articles were systematically searched in the Scopus database based on predefined search terms related to sustainability education and business. The first set of search queries was: "education AND sustainability OR (sustainable AND development) AND (business OR (business AND program OR (business

AND studies) OR entrepreneur OR entrepreneurship)". This search was conducted to identify publications on sustainability education in business studies and entrepreneurship programs and resulted in 2,767 scholarly publications from 1993 to 2022.

A second search was conducted, in which sustainability consciousness was the specific focus term, which were "higher AND education AND (sustainability OR (sustainable AND development)) AND (business OR (business AND program OR (business AND studies) OR entrepreneur OR entrepreneurship) AND (consciousness OR awareness)". This search was conducted to identify articles that discussed the construct of sustainability consciousness in business studies, resulting in 77 publications from 1993 to 2022. To ensure comprehensive extraction of relevant work, the search strategy was designed to cover a wide range of subjects and limit the search to the area of sustainability and business studies. Using multiple Boolean operators (AND, OR), it was possible to combine different variations of keywords and capture articles from different multidisciplinary perspectives (Jesson et al. 2011). By adding terms such as "business," "business program," "business studies," "entrepreneurship," and "entrepreneurship," a large number of publications, from business management to business programs and studies and entrepreneurial practices, were captured in the search. In addition, using terms such as "sustainability," "sustainable," or "sustainable development" as part of the search guaranteed that it brought up publications pertaining to the most important concepts regarding sustainability.

Table 1. Constructing the Research Query Based on the PICO Framework

PICO	Description	Keywords
Population	Higher education institutions that include business/ entrepreneurship education	Higher Education AND Business OR business program OR business studies OR entrepreneur OR entrepreneurship
Intervention	Educational processes aimed at achieving sustainability	Sustainability Education OR Education for Sustainable Development
Comparison	No comparison group specified	-
Outcome	Expected outcome: sustainability consciousness	Sustainability Consciousness OR Sustainability Awareness

Further narrowing the search and focusing on sustainability consciousness facilitated the identification of gaps and opportunities to explore an underrepresented area of research in business. Thus, the two-stage search was a structured yet flexible method that identified key themes and current trends in the literature, as well as ensuring that a full range of available relevant material was collected. This structured manner of data collection not only made it possible to identify seminal research but also to identify gaps that still need to be filled, especially regarding the integration of sustainability consciousness in business studies.

VOSviewer, a widely accepted software tool for performing bibliometric research, was used to visualize the bibliometric networks and map the scientific literature (Contreras & Abid, 2022; Costa et al. 2017). The utility can be used to analyze various types of networks (co-occurrence, citation, co-authorship) in an effort to identify trends and see how scholarly works are connected.

The specific techniques applied in the analysis were as follows.

- **Co-occurrence Analysis:** This technique was used to examine the frequency with which specific keywords appeared together in the same articles. By analyzing co-occurrence, we could identify relationships between key topics such as sustainability, entrepreneurship, and business education.
- **Keyword Clustering:** VOSviewer allowed for the grouping of related keywords into clusters that represent different thematic areas within the literature. This clustering revealed the main areas of focus within sustainability and business education.

- **Citation and Co-authorship Networks:** Citation networks helped identify influential publications, while co-authorship networks revealed patterns of collaboration among scholars. These networks provided insight into the intellectual structure of the sustainability education field and highlighted key contributors.

Although bibliometric techniques are useful for identifying trends, gaps, and topic evolution, they do not provide methodological details or specific findings of individual studies. To add depth to the bibliometric analysis, a more qualitative analysis is needed to help readers gain a better grasp of the results and contributions of the reviewed studies.

The research process, shown in Figure 1, begins with retrieving related papers in the Scopus database using keywords related to sustainability education and business. The collected data were filtered further to narrow down the focus solely on research articles concerned with sustainability consciousness in business studies. Subsequently, bibliometric analysis was performed, which involved co-occurrence analysis to assess the frequency of keywords appearing together in the same articles and keyword clustering to group related terms into thematic areas. The next step involved identifying research gaps, particularly by analyzing the contribution of existing research on sustainability consciousness. Finally, the research concludes with the formulation of contributions, including recommendations for future research. This schematic flow matrix provides a systematic process that guides the study from data collection and refinement to bibliometric analysis, gap identification, and the development of research contributions to advance future studies.

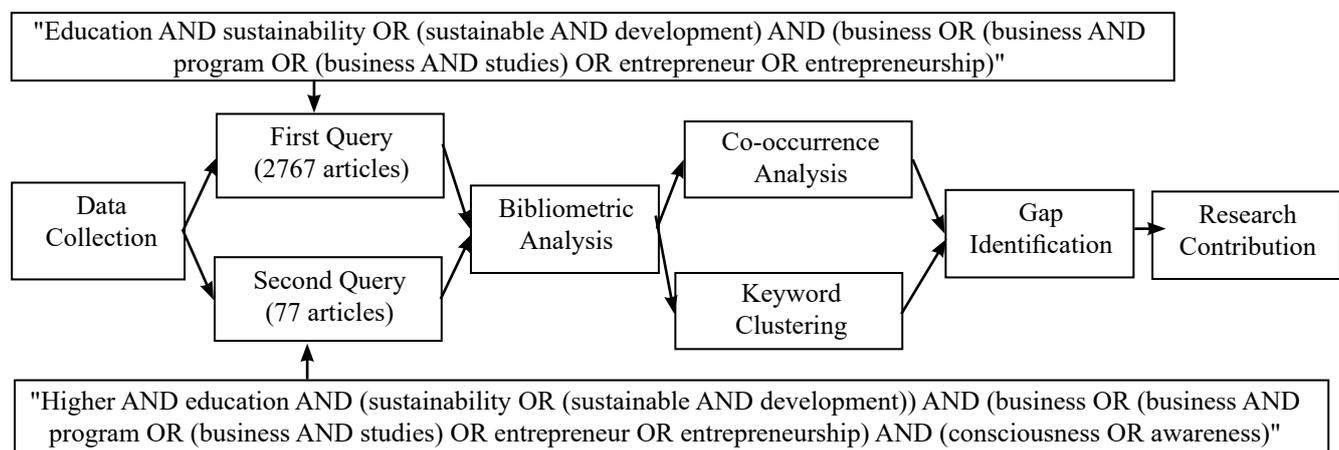


Figure 1. Research process flowchart

RESULTS

A two-stage data collection process was employed to review the literature progress related to education for sustainability and its application in business studies. The first search query was conducted on November 22, 2022, using the keywords “education AND (sustainability OR (sustainable AND development)) AND (business OR (business AND program OR (business AND studies) OR entrepreneur OR entrepreneurship)”. This search resulted in 2767 Scopus-indexed publications spanning from 1993 to 2022. As shown in Figure 2, there has been a significant growth in research topics related to education for sustainability. In 2015, when

the Sustainable Development Goals (SDGs) were launched, the number of publications increased sharply.

The analysis revealed that the literature on sustainability education in business is primarily clustered around several central themes. Figure 3 illustrates the main knowledge areas contributing to the study of sustainability education in business, where the Social Science contribute 27.3% and Business, Management, and Accounting contribute 16.9%, with the remaining contributions coming from other knowledge domains. To further analyze these clusters, a second filtering stage was applied, focusing on the two dominant knowledge fields, resulting in 1336 articles.

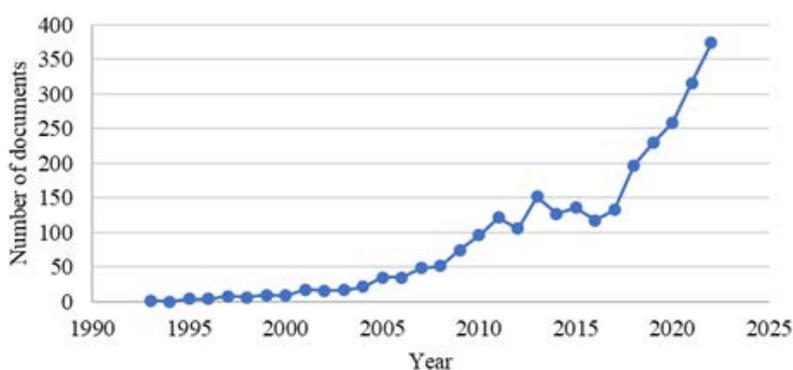


Figure 2. 2767 scholarly articles published related to sustainability education from 1993 – 2022

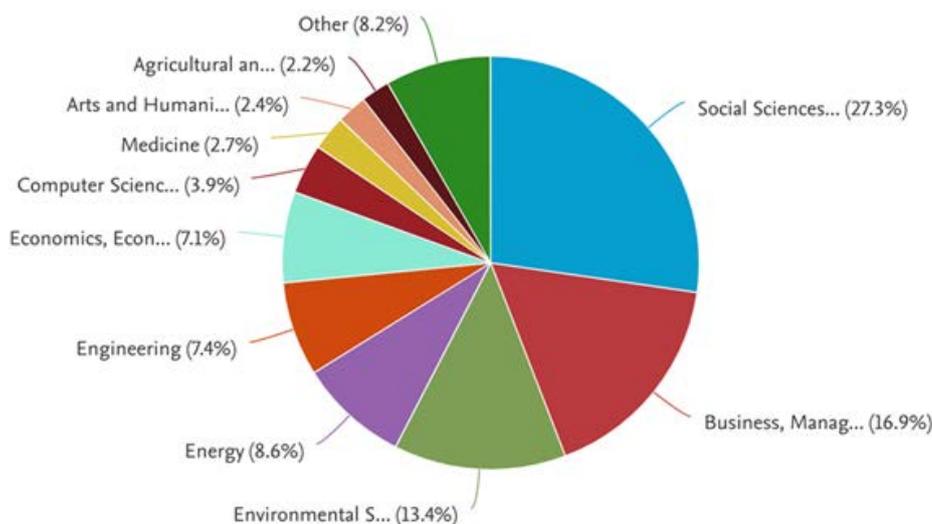


Figure 3. Key knowledge areas contributing to sustainability education from 1993 – 2022

Co-occurrence analysis and keyword clustering

Co-occurrence analysis, conducted using VOSviewer, revealed 5,483 popular keywords from the selected 1,336 articles. To refine this dataset and make it more manageable, a minimum co-occurrence threshold of 15 was applied, meaning keywords needed to appear at least 15 times across the articles to be included. As a result, 63 keywords were identified, and these were then grouped into distinct clusters based on their thematic relationships. The visualization of these clusters provides a clear representation of the key research topics and how they are interrelated, offering a comprehensive overview of the current landscape in the field, as shown in Figure 4. The figure showed several clusters that corresponded with major research themes. The Red Cluster (Sustainable Development), for example was based on the key words “sustainable development,” “business schools,” and “management education.” This cluster shows the growing fusion of sustainable development into educational and business systems, indicating how education is crucial for the

promotion of sustainability. Meanwhile, the Green Cluster (Sustainability) was dominated by keywords like “sustainability,” “circular economy,” “corporate social responsibility,” and “stakeholder.” These terms are increasingly stressed upon for sustainable business practices and corporate responsibility which says a lot about how sustainability is slowly but surely integrating itself in a wide variety of areas.

Furthermore, the Blue Cluster (Education & Entrepreneurship) formed with the key words of “entrepreneurship,” “education,” and “student.” This language cluster demonstrates the fusion of education and entrepreneurship, reflecting a widely held concern around how education systems cultivate the entrepreneurial mind-set and skills. The Yellow Cluster (Business & Innovation), which was described using terms such as “business,” “innovation,” and “management”, emphasized the role of innovation and business strategies for sustainable practices and their relevancy in providing sustainable business model.

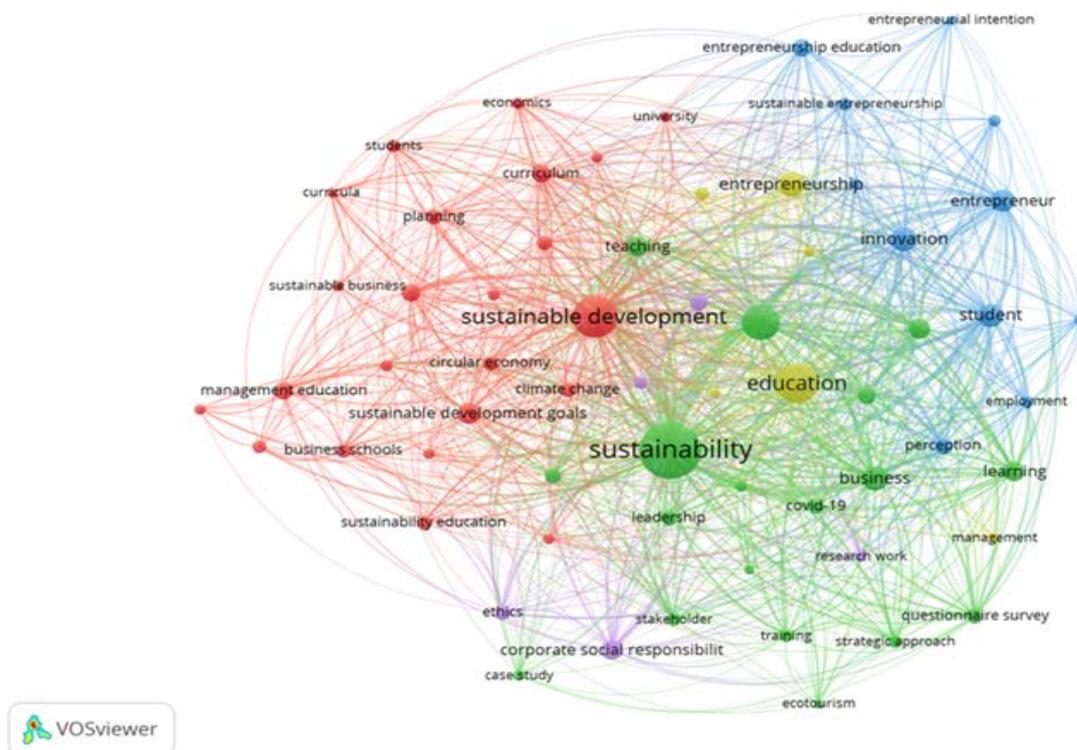


Figure 4. Co-occurrence analysis of 1336 articles

The connections between clusters were studied using co-occurrence analysis, and strong and weak relationships among the themes were detected. The associations were the strongest between the Red Cluster (Sustainable Development) and the Green Cluster (Sustainability). Such a strong connection is reflected in the high coexistence of keyword terms including “sustainable development” and “sustainability”, indicating that the conversation on sustainable development is necessarily set in the wider context of sustainability endeavors. Similarly, a strong connection was found between the Blue Cluster (Education & Entrepreneurship) and the Yellow Cluster (Business & Innovation), where keywords such as “education” and “entrepreneurship” were closely associated with business-related innovation and management strategies.

Meanwhile, the Red Cluster (Sustainable Development) and the Yellow Cluster (Business & Innovation) showed the less strong correlation. While both groups focus on sustainability to some extent, their keyword usage was less frequently co-occurring, indicating a more distant relationship between sustainable development education and the specific business and innovation practices that support it. Similarly, the Blue Cluster (Education & Entrepreneurship) and the Green Cluster (Sustainability) showed weaker connections, suggesting that while entrepreneurship education contributes to promoting sustainable business practices, there is less frequent overlap between these two areas in the existing literature. These insights reveal weak interconnections between business innovation and sustainable development, indicating that, while there is some overlap, these fields are not as closely tied in the current body of research.

Interestingly, keywords such as “consciousness” or “awareness” did not appear in the central clusters, pointing to a major gap in the literature. The lack of these terms indicates that while sustainability in business studies is a well-researched topic, the concept of sustainability consciousness, or the deeper awareness of sustainability issues among business students, is severely underexplored.

The second bibliometric query, using the keywords “higher AND education AND (sustainability OR (sustainable AND development)) AND (business OR (business AND program OR (business AND studies) OR entrepreneur OR entrepreneurship) AND consciousness,” was conducted on November 22, 2022. However, this search resulted in only 4 articles, underscoring the underrepresentation of research specifically focused on sustainability consciousness. To address this limitation, the keyword “consciousness” was expanded to include “awareness,” which resulted in a significantly higher number of articles (77 publications in total), as shown in Table 2.

The limited number of articles found using the original “consciousness” keyword indicates a lack of academic focus on the critical aspect of sustainability consciousness. The subsequent search using “consciousness OR awareness” revealed a broader range of studies, but the gap remains significant. As Table 2 shows, only a few articles explored sustainability consciousness or awareness in depth, further emphasizing the need for more research in this area.

Table 2. Differences in articles captured by the keyword “consciousness OR awareness”

Keywords	Articles Captured
higher AND education AND (sustainability OR (sustainable AND development)) AND (business OR (business AND program) OR (business AND studies) OR entrepreneur OR entrepreneurship) AND consciousness	4 articles
higher AND education AND (sustainability OR (sustainable AND development)) AND (business OR (business AND program) OR (business AND studies) OR entrepreneur OR entrepreneurship) AND (consciousness OR awareness)	77 articles

Following the second round of article searches using the keywords “consciousness” OR “awareness,” a total of 77 articles were retrieved. After further refinement based on topic relevance, titles, and abstracts, 62 articles were selected for in-depth analysis. From these 62 articles, 377 unique keywords were identified, with 24 keywords meeting the minimum threshold of three co-occurrence occurrences. This co-occurrence analysis allowed for a more detailed examination of the relationships between key terms within the literature.

Figure 5 illustrates the co-occurrence mapping of these 62 articles, showing five distinct clusters represented by different colors. The Red Cluster focuses on keywords related to sustainable development (SD), education for sustainable development (ESD), and the Sustainable Development Goals (SDGs). The Green Cluster includes keywords related to education, students, and the university sector. The Blue Cluster features terms such as higher education, sustainability, knowledge, awareness, and survey, reflecting the growing interest in how sustainability awareness is being integrated into educational practices. The Yellow Cluster includes

keywords associated with curriculum, environmental education, and environmental management, while the purple cluster focuses on teaching and case study keywords.

The results of this co-occurrence analysis reveal that while sustainability and higher education are frequently discussed in the literature, there remains a notable lack of research directly addressing “consciousness” or “awareness” in the context of education for sustainability. The clustering indicates that the topic of “consciousness” or “awareness” has not been as extensively explored compared to broader sustainability and development themes. In fact, Figure 6 highlights a clear trend: research specifically addressing “awareness” started to gain momentum only around 2019, following a surge in studies related to sustainability and sustainable development. This suggests that the academic community has only recently begun to explore the significance of awareness in the context of sustainability education, and much of this research is still in its early stages.

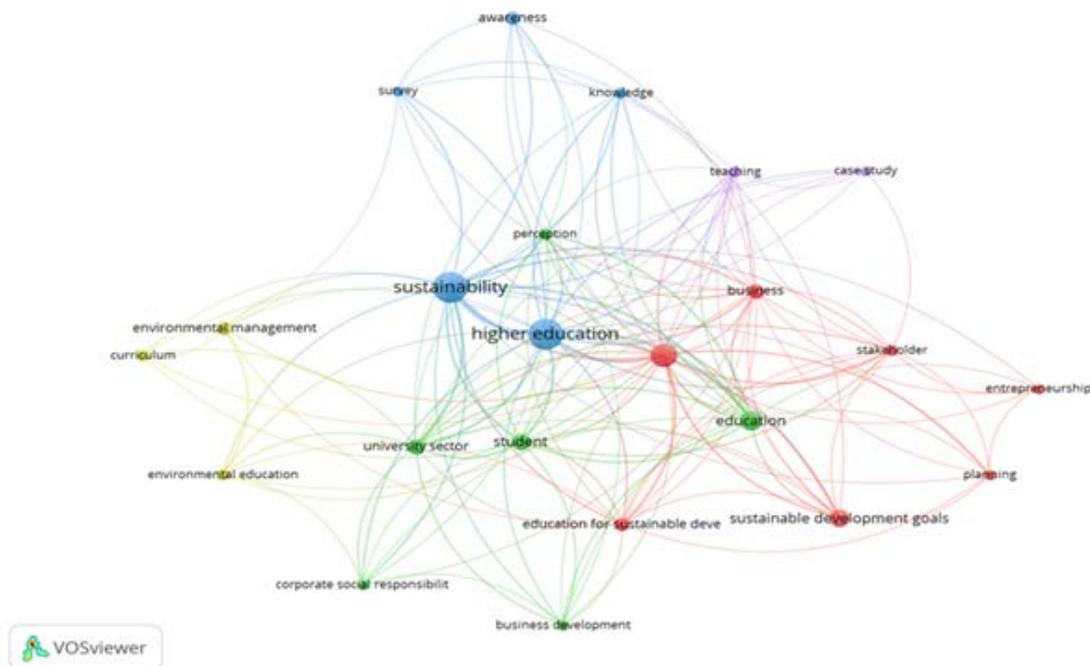


Figure 5. Co-occurrence mapping of 62 articles on education for sustainable development

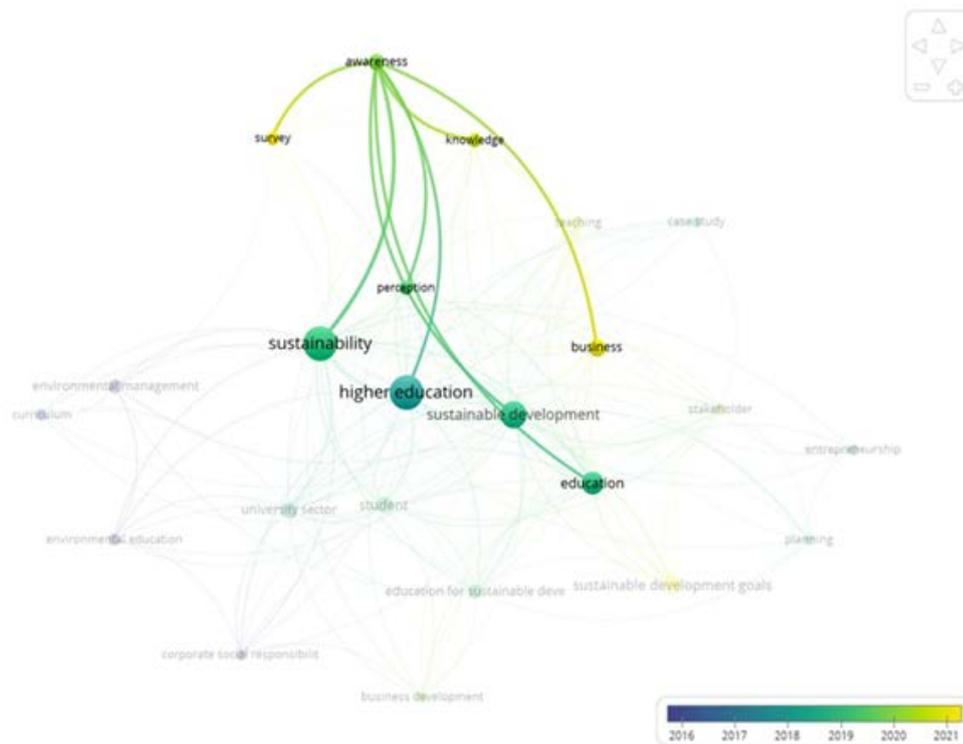


Figure 6. Studies related to ‘awareness’ from 62 articles

Based on the findings and analysis above, it can be concluded that, while sustainability is widely explored in business studies, there is a significant gap in addressing sustainability consciousness. The absence of terms such as “consciousness” or “awareness” in the central clusters highlights the limited focus on this concept within the literature. The landscape of the study, as shown in the cluster analysis, indicates that while entrepreneurship education contributes to promoting sustainable business practices, there is limited overlap between entrepreneurship education and sustainability in existing research.

This study presents a bibliometric analysis of the integration of sustainability within business studies, with a specific focus on sustainability consciousness or awareness. Consciousness is understood as a complex, multidimensional construct with various interpretations across different fields, including philosophy, psychology, neuroscience, and mysticism (Hastjarjo, 2005). In psychology, consciousness is viewed as a subjective, qualitative state that enables behavioral flexibility (Morgado Bernal, 2009). Brazdău & Mihai (2011) also differentiate between consciousness and awareness, noting that consciousness being a higher-level concept that encompasses awareness (Velmans, 2009). Building upon environmental consciousness,

sustainability consciousness is defined as the awareness or experience of sustainability phenomena. It also encompasses environmental, social and economic dimensions, as well as psychological factors like attitude, behaviour, and knowledge (Gericke et al. 2018; Olsson & Gericke, 2016). This concept promotes a holistic understanding of sustainability issues, recognizing the interconnections between environmental, social, and economic concerns (Le Blanc, 2015).

The findings underscore a growing recognition of sustainability in business curricula, especially following the launch of the SDGs in 2015. The significant growth in research related to sustainability education reflects the increasing recognition of sustainability’s importance in business studies area. However, despite this rapidly expanding body of sustainability literature, sustainability consciousness remains relatively under-researched in the context of business education. While progress in the field of sustainability education in specific areas such as operations, marketing and entrepreneurship, the grounding of sustainability awareness has been insufficiently aligned with the development of a deeper knowledge of sustainability consciousness. The gap in literature is particularly significant, as the deeper understanding of sustainability

consciousness remains weakly connected to the broader scope of sustainability education. Høyer & Næss (2001b) state that superficial depths of the human consciousness are often connected to the limited ecological awareness, as precise knowledge is limited about the planetary threshold or relations between social, environmental and economic systems and may be such that students do not fully understand it. This oversight of sustainability consciousness in business studies has grave consequences, as students are not sufficiently prompted to think critically and reflect on a professional and personal level on the ethical and environmental dimensions of sustainability.

The gap in sustainability consciousness becomes more evident when considering sustainability as an ecological and ethical necessity. As Kopnina (2020) notes, sustainability education may take an anthropocentric form prioritizing human needs and preferences at the expense of the needs of the environment. This model, common in business degrees, often neglects the fundamental trade-offs between ecological, social and economic sustainability, typically favoring economic growth at the expense of ecological balance (Kopnina, Hughes, et al. 2024). This huge disconnect is indicative of a broader re-orientation in the teaching of sustainability in business courses, from narrow, business-centric views to a more profound, empathetic understanding of sustainability issues.

In line with the above view, Elgin (1994) and Onel & Mukherjee (2014) suggest that environmental problems are deeply rooted in human consciousness and cultural narratives. Jones & Akura (2017) highlight the link between human consciousness and environmental degradation, asserting that a polluted environment reflects a polluted mind. Addressing these ingrained, often overlooked paradigms is essential for fostering a transition toward a sustainable future. If business students are to fully understand sustainability that meaningful, education needs to move beyond technical, narrow-focused curricula and encourage the development of critical thinking and ecological empathy, which are the tools necessary for tackling the global sustainability challenges of the future.

Building on the arguments of Pandey & Kulshreshtha (2012), it is clear that education needs to do more than simply a medium by which environmental knowledge is transmitted. Students' moral perceptions and behavioral intentions regarding sustainability should be also

influenced. Sustainability education, especially among business studies, should, therefore, be transformative, fostering the critical consciousness needed to engage with the ethical, social, and ecological dimensions of sustainability. This study underscores the importance of understanding how sustainability challenges are internalized by students, with a particular emphasis on cultivating the ethical, moral, and ecological awareness necessary to address these challenges effectively in future.

Looking ahead, the integration of sustainability consciousness within business studies must evolve to equip future business leaders with the tools needed to address complex global sustainability challenges. Curriculum reforms should prioritize interdisciplinary learning, blending sustainability education with ethics, social responsibility, and environmental sciences. Developing a deeper understanding of the interconnections between environmental, social, and economic systems enables business schools to better prepare students to critically assess the trade-offs inherent in business decisions. Additionally, integrating experiential learning, case studies, and real-world problem-solving into business curricula strengthens students' ability to internalize sustainability principles more effectively. There is an urgent need to reorient business education towards genuine sustainability, integrating ethical environmental responsibility and social accountability into business practices (Kopnina & Bedford, 2024).

Managerial Implications

The findings of this study have significant managerial implications for business education and research. Researchers should prioritize exploring the integration of sustainability consciousness into business curricula, focusing on ethical, cognitive, and affective dimensions of sustainability. The limited research on sustainability consciousness indicates a need for further exploration in this area to ensure that business studies go beyond technical knowledge and include a deeper, transformative understanding of sustainability issues.

For business school administrators and policymakers, this study highlights the importance of rethinking business curricula to effectively integrate sustainability consciousness. Business schools must develop educational programs that foster not only technical expertise in sustainability but also a deeper ethical

commitment. Business leaders must ensure that sustainability becomes a central value in business decision-making, guiding future leaders to make responsible and sustainable choices.

From a managerial perspective, equipping future business leaders with the tools to think critically about sustainability challenges is essential. Incorporating sustainability consciousness into business education will enable leaders to create strategies that are not only profitable but also environmentally and socially responsible. Business schools should view this integration as a core part of their curriculum, ensuring that sustainability is not merely an add-on but a fundamental component of business education.

It is crucial for governments to establish frameworks and set standards for higher education that include sustainability consciousness as a core component. By creating regulations and accreditation criteria that incorporate sustainability consciousness, governments can ensure that business schools meet specific standards related to ethics, sustainability, and social responsibility. Furthermore, governments should incentivize business schools to prioritize sustainability consciousness, thereby reinforcing its importance in both the academic and business sectors.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

These findings highlight the growing importance of sustainability education in business studies and the need to address the research gap on sustainability consciousness. As global challenges such as climate change, resource depletion, and social inequality continue to escalate, sustainability has become increasingly important. This growing awareness underscores the crucial role that businesses and business studies must play in addressing these pressing issues. However, despite this rising need, business studies have traditionally focused on business practices, often neglecting the deeper moral and ethical dimensions of sustainability. Consequently, sustainability education has not been fully integrated into business curricula. Consequently, the vital issue of sustainability consciousness, which refers to the internalization of awareness of sustainability issues and a felt commitment to addressing these challenges,

has not been adequately addressed in current research.

The results of this study confirm the existing critiques in the literature regarding business education, where sustainability consciousness has been inadequately addressed in the curriculum. Previous studies have highlighted the failure to focus on the root causes of unsustainability, with business curricula often prioritizing technical skills over the necessary ethical and cognitive development for students to internalize sustainability as a core value. Furthermore, business schools frequently fail to align their sustainability rhetoric with their actual curricula, resulting in a disconnect between theory and practice. The paradox between economic growth and ecological sustainability, where financial profit is often prioritized over environmental concerns, aligns with previous research. These findings are consistent with the call for the urgent need to reorient business education towards genuine sustainability by integrating ethical, social, and ecological dimensions into business practices.

Recommendations

The lack of emphasis on developing sustainability consciousness presents a significant challenge to business studies. To address this gap, business studies should evolve beyond traditional frameworks and integrate both practical knowledge and ethical awareness needed for sustainability. Business schools must move beyond viewing sustainability as an add-on and actively engage students in both the cognitive and moral processes essential for long-term sustainability. The next generation of business leaders must not only learn how to manage sustainable practices but also develop moral tools to make decisions that are ecologically, socially, and economically responsible. Moving forward, it is crucial that business studies empower students to transform their knowledge of sustainability into actionable steps, ensuring that they are equipped to create a more sustainable and equitable future. Finally, further research is needed to explore how sustainability consciousness can be effectively implemented in business curricula, helping students not only understand sustainability but also apply it in their professional lives. Acknowledgments: This study is part of a doctoral dissertation at the School of Business, IPB University. The author sincerely appreciates the institution's academic support and extends special gratitude to the dissertation supervisors for their invaluable guidance and insightful feedback.

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