

# Sustainability in Tourism and Hospitality Degrees: A Systematic Review

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**Abstract:** Sustainability has been of greater concern in all industry sectors, specifically in hospitality and tourism, which highlight the need for skills in sustainability in the sector. Therefore, higher education institutions must consider this concern of industry and incorporate this topic in hospitality and tourism curriculums. This paper makes a systematic literature review on sustainability topics included in hospitality and tourism curriculum of higher education courses. It was analysed 48 papers indexed on Web of Science database that discussed the presence and/or requirement for sustainability topics in higher education curriculums. This study shows that the first study on this topic only started in 2015 and emphasizes that only in the last two years it has been of greater concern by researchers, but still needing to be more carefully addressed by higher education institutions to effectively include sustainability topics in hospitality and tourism curriculums. Moreover, more research is needed to push higher education curriculums in hospitality and tourism to fully address the topic of sustainability and well prepare the future professionals of the sector.

**Keywords:** Curriculum; Higher Education; Hospitality; Sustainability; Tourism

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## 1. Introduction

How to integrate sustainability into the undergraduate curriculum is a topic of rising pedagogical discussion because of the growing significance of sustainability in the Hospitality and Tourism sector. The requirement of teaching sustainability in the Hospitality and Tourism curriculum (Deale et al., 2009) and assessing stakeholders' opinions regarding curriculum instruction in this area (Barber et al., 2011) have been the main themes of the preceding systematic review. According to Phi & Clausen (2020), the sector is often promoted as an important driver of global economic growth but is criticized for its sustainability on issues such as rising inequality, climate change and over-tourism. This current context therefore provides increased needs for the development of tourism students' innovation skills, to better adapt and cope with change and contribute to meeting the sector's growing challenges. To Ruano-Borbalan (2019), in addition to formal academic training, there must be transversal and tacit knowledge that articulates the personal, social, political, and professional dimensions. Tourism students, as future tourism professionals and leaders, must take responsibility and concrete steps to ensure a sustainable future for both industry and the world. Innovation skills must be fostered in tourism higher education, as well as their motivation and confidence in becoming future tourism change agents and responsible professionals (Phi & Clausen, 2020). To Hayes (2020), for tourism to be truly sustainable, it is crucial to have a balance between the needs of the business world, socio-cultural, and environmental needs. Educators must balance the professional and liberal education of curricula to genuinely contribute to a better and more sustainable world through their educational work (and not just our research work), and it can even be argued that this issue should be brought to the forefront. It could be argued that this is a necessary focus within a service industry like tourism, and this means that graduates coming out of these curricula are likely to be competent employees (Hayes, 2020). As they develop reflective skills, these graduates may also be able to recognize when they, or the organization they work for, are underperforming and take corrective action to mitigate it. It will be a while before all management students can be considered to have received a comprehensive education on environmental issues, claim Larrán & Andrades (2015). To guarantee that future managers act sustainably, it would be required to create more ecologically conscious organizational management courses for the upcoming generation of students. Larrán & Andrades (2015) defend that only institutional and legal pressure from stakeholders might address the dearth of environmental teaching at Spanish colleges. The absence of social pressure is one of the primary obstacles to turning institutions into sustainable universities (Ferner-Balas et al., 2008). The existence of coordination bodies and initiatives, with society and the availability of finance, are the primary forces behind change, all of which are critical for advancement. To Ferner-Balas et al. (2008), it is crucial to improve interdisciplinarity as a strategic goal and create networks of expertise within universities. To Ruano-Borbalan (2019), in addition to formal academic training, there must be transversal and tacit knowledge that articulates the personal, social, political, and professional dimensions. Tourism students, as future tourism

professionals and leaders, must take responsibility and take concrete steps to ensure a sustainable future for both the industry and the world. Innovation skills must be fostered in tourism higher education, as well as their motivation and confidence in becoming future tourism change agents and responsible professionals (Phi & Clausen, 2020). More specific policies are needed to create a sustainable future for all, both within higher education in tourism and beyond (for example, in start-up incubators, innovation centres and the travel sector in general). To Phi & Clausen (2020) higher education institutions should recognize different pedagogies for innovation education in tourism curricula (compared to traditional pedagogies and education) and adapt both administration and program to better accommodate the different teaching tasks and functions. According to Hayes (2020) programmes should encourage student reflection on the complex relationship between tourism, people, and the planet (i.e. liberal reflection). Slocum et al. (2019) argue that the mission of higher education remains the stimulation of critical thinking, decision-making skills, and ethics. However, some universities are market orientated. Sustainable tourism is deeply linked to the Sustainable Development Goals (SDG) and its integration into higher education implies a responsibility to contribute to the long-term success of these goals. According to Slocum et al. (2019), academia must provide the means to engage students with multiple forms of knowledge to inform the individual's role in society. Zizka & Varga (2020) claim that the mindset about sustainability has changed from following the law to acting morally. To better prepare students to become leaders who care about the world they share with others, several higher education institutions have included sustainability principles into their curricula and as part of their overall school strategy. To Ruhanen & Bowles (2019), the importance of education in promoting sustainability action and change is becoming more widely acknowledged. Given that over a billion people travel abroad annually, it is critical that we create efficient strategies to inform and motivate these individuals to take longer-term, more sustainable, and ethical travel habits. Higher education institutions must become significant contributors to the promotion of sustainability (Ruhanen & Bowles, 2019) and the preparation of a new generation of graduates whose values and skills contribute to social progress and the advancement of knowledge. To Zizka & Varga (2020), higher education instructors should give students the chance to have an appreciation for making decisions that consider the social, environmental, and economic pillars of sustainability both now and in the future. Conefrey et al. (2025) realized that there is a substantial knowledge gap in sustainable literacy among third-level tourism degrees, especially when it comes to measuring and tracking emissions to help make the shift to Net-Zero emissions before 2050. Higher education plays a crucial role in equipping tourism graduates with the knowledge and skills necessary to enhance sustainability and climate action (Arrobas et al., 2020).

In general, this research aimed to develop a systematic review and study of the literature to highlight the findings of how sustainability is offered in Hospitality and Tourism Degrees. Additionally, it presents helpful direction for creating programs and curricula that promote sustainable practices. The results of this study have the potential to provide information on how to develop sustainable tourist practices and climate change education.

## **2. Methods**

### **2.1 Searching Strategies, Inclusion and Exclusion**

The literature search was conducted using the Web of Science due to the fact that this is the database licensed for Higher education institutions. The strategy involved using as topic the terms “(hospitality OR tourism) AND sustainab\* AND (curriculum OR curricula)”. All search attempts focused on the sustainability issues applied to tourism and hospitality curriculum in higher education degrees. The search was made during April 2025.

The inclusion criteria were: (a) studies focused on sustainability in the hospitality and tourism curriculum; (b) full paper and early access available in Web of Science; (c) the text had to be written in English. The exclusion criteria were: (a) inability to access the full text; and (b) being a systematic review paper.

### **2.2 Searching Process**

In the first step, a total of 146 publications were collected from the Web of Science. In the screening phase, considering papers and early access, we achieved 108 papers. We removed 4 papers because they were not written in English. In the screening of the title and abstract, according to the study objective, we identified 51 papers. It was removed 53 records. In the eligibility analysis, it was excluded 3 papers, remaining 48 full papers for analysis that are suitable for a systematic review (Paul & Criado, 2020).

## 2.3 Data Analysis

A bibliometric performance analysis was performed for the 48 articles. This analysis consisted of a quantitative description of the paper according to the following information: Annual scientific production, Knowledge areas of publications, Countries, Most relevant authors, Most relevant articles, and Journals. In this stage, tables, graphics and visualization maps were prepared in a segregated way to present the main results

Moreover, a science mapping using VOSviewer was performed. For this analysis, a cluster was created for the keyword (conceptual structure) and a cluster for co-citation (intellectual structure). The results interpretations and discussions were based on the analysis of the science mapping and identification of the most relevant aspects conducted through the main evolutionary analysis techniques and relational analysis.

## 3. Results

### 3.1 Bibliometric Performance Analysis

This section aims to present the main results related to the sample in a global context to provide an overview of the state of art based on bibliometric performance analysis techniques to present the key evolutionary indicators (annual scientific production, knowledge areas, countries, journals, most relevant authors, and most cited papers).

In order to promote a broad debate related to issues of sustainability in the curricula of Hospitality and Tourism higher education degrees, it is important to know in which area of knowledge efforts are being directed towards the development of scientific production related to this topic. Figure 2 shows the subject areas' proportions of the 48 papers analyzed in this systematic review. Most papers, in the Web of Science, were classified in the Business Management and Accounting, and Social Sciences subjects, representing 36% of the total sample. Business, Management and Accounting as a knowledge represents 28% of the total sample.

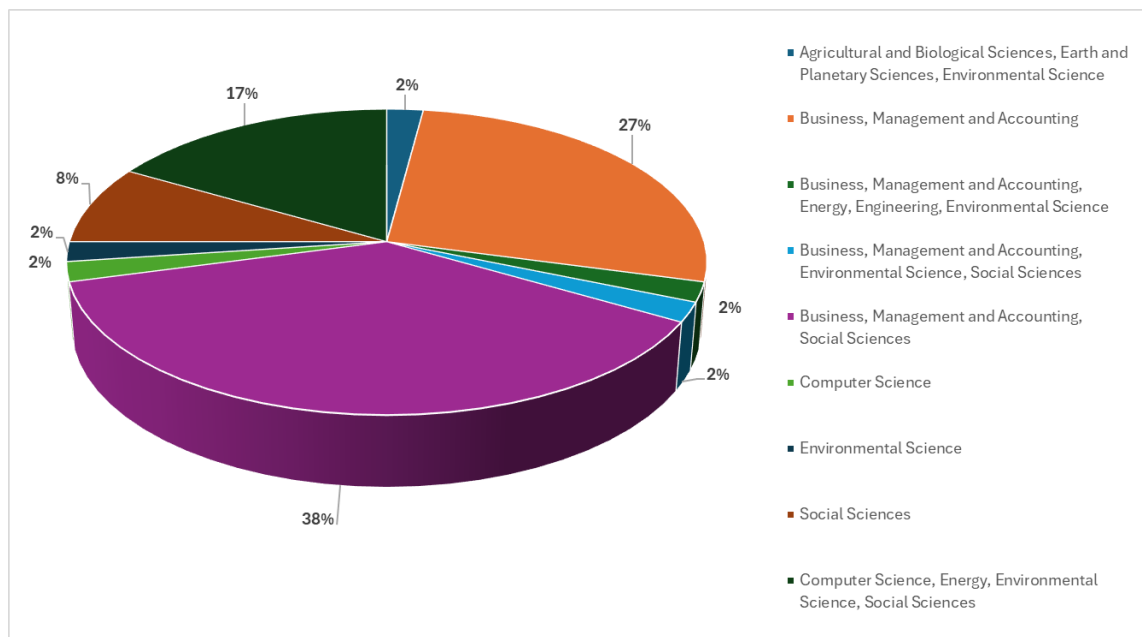
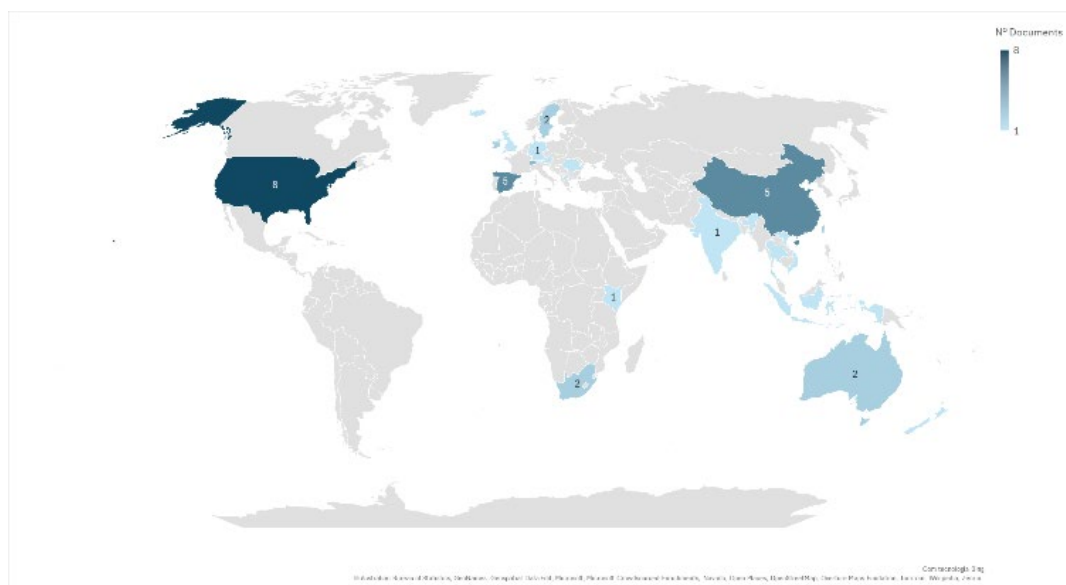


Figure 1: Knowledge areas of papers

#### 3.1.1 Countries

Within the scope of this sample study, the 48 papers analyzed were produced by authors from 24 countries, as observed in Figure 3. Publications covered multiple countries. Considering the continent, we can observe that 17 were produced in Europe (36%), 18 (38%) in Asia, and 8 in America (17%). At the country level, the most frequent is USA (n=8, 17%), followed by Spain (n=5, 10%) and China (n=5, 10%).



**Figure 2: Country scientific production**

### 3.1.1 Most Relevant Papers

The list of the most cited papers is presented in Table 1. The most cited paper (Tasdemir & Gazo, 2020) aimed to contribute to the strategic alignment of higher education institutions and corporate organizations by developing a course curriculum that integrates modern management techniques and sustainability concepts with wood products industry dynamics, which also focuses on project-based learning (PBL). Main findings suggested that the proposed course content successfully increased sustainability awareness at both overall and individual sustainability pillar levels. At the end, 100% of students were able to develop a complete understanding of various modern management techniques and stated that they feel confident to apply learnt skills to real-life issues within their profession upon graduation (Tasdemir & Gazo, 2020).

The second most cited paper (Coterrell, 2019) aimed to analyze the strength of sustainability conceptualizations underpinning international undergraduate sustainable tourism courses. Results suggested that sustainable tourism courses do not include “very strong” conceptualizations of sustainability, and that sustainability pedagogy and approaches such as systems and holistic thinking are not widely used.

### 3.1.1 Journals

Regarding the distribution of the journals that published the most within the sample under analysis, with their Quartile, despite a dispersed sample, the journal with the most papers published was Sustainability (n=8). Sustainability is a Q1 journal, with an impact factor of 3.3 and a cite score of 7.7 in the year 2023. The second journal that published the most articles were the Journal of Hospitality, Leisure, Sport & Tourism Education (n=7) and the Journal of Teaching in Travel & Tourism (n=7). The Journal of Hospitality, Leisure, Sport & Tourism Education is a Q1 journal, with an impact factor of 4.8 and a cite score of 10.6. The Journal of Teaching in Travel & Tourism is a Q2 journal, with an impact factor of 1.3 and a cite score of 4.3.

## 3.2 Science Mapping Techniques

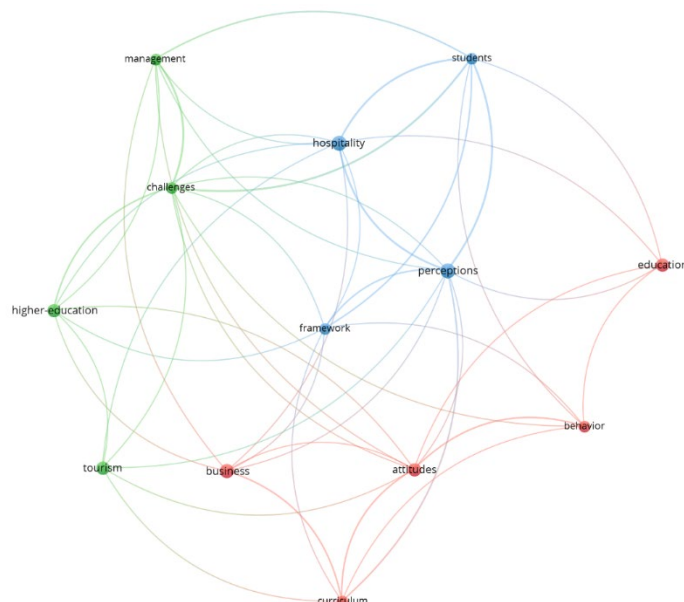
This sub-section aims to present the results of the science mapping analysis, namely the relational keyword co-occurrence and co-citation analysis. Science mapping explore the relationships between researchers’ constituents through conceptual, intellectual and social connections analysis (Donthu et al., 2021).

### 3.2.1 Conceptual Structure

The conceptual structure of a research consists in the analysis on the most important keywords co-occurrence of the documents, allowing the mapping of clusters terms extracted from keywords, titles, or abstracts in a bibliographic collection (Aria & Cuccurullo, 2017). This analysis is crucial to enable understanding relationships among various scientific concepts and to reveal the evolution of research topics and knowledge (Zeng et al, 2017).

The VOSviewer software was used to construct the words co-occurrences map, as observed in Figure 5, considering the keyword plus metric as unit of analysis, in a full counting method, and considering the minimum number of 5 occurrences of a keyword. With these parameters, and according to the metadata information, 13 keywords were selected, resulting in three clusters.

The first cluster (shown in red) on Figure 5 is composed by five words: education, curriculum, business, attitudes and behavior. The second cluster (shown in green) is composed by four words: tourism, management, challenges, and higher education. The third cluster (shown in blue) is composed by four words: hospitality, students, framework, and perceptions.



**Figure 3: Keyword Plus co-occurrence analysis**

### 3.2.1 The Intellectual Structure

The intellectual structure of a knowledge area can be made through co-citation analysis (Köseoglu, 2020). The co-citation is defined as the frequency with which two papers of earlier literature were cited together by the later literature (Aria et al., 2020). The VOSviewer software was used to construct the co-citation map, as shown on Figure 5, considering cited authors metric as unit of analysis, in a full counting method, and considering also four as a minimum number of citations of an author. With these parameters, 27 authors were identified as the threshold for this analysis based on the calculation of the total strength of the co-citation links between authors. As a result, three clusters were identified in the sample with a total of 2735 citations, 177 links between papers and a total link strength of 272. The red cluster is the largest, comprising 12 publications. The highly cited publication is Boley (2011) with seven citations. The green cluster is the second largest cluster with 11 papers. blue cluster is the smallest cluster with four publications. The highly cited publication in this cluster is Alexakis (2019) with five citations.

In the red cluster, the most cited author is Boley (2011) with the paper *Sustainability in Hospitality and Tourism Education: Towards an Integrated Curriculum*. In this paper the main subject debated over whether or not sustainability should be taught in the Hospitality and Tourism curriculum. According to these papers (e.g Boley, 2011), rather than restricting its inclusion to particular classes or majors, an integrated sustainability curriculum will give students a better education and better preparation for the Hospitality and Tourism industry.

In the green cluster, the most cited authors are Tribe (2002), Wilson & von der Heide (2013), and Boyle et al. (2015). In Tribe (2002) study the concepts for curriculum organization in higher education tourism courses are analyzed. The framework suggested is based on four basic realms of liberal reflection, liberal action, vocational action, and vocational reflection. This framework makes it possible to highlight the issues with curriculum that are overly concentrated in one area of the curriculum. It also makes it possible to argue for and specify the content of a higher education program in tourism that trains "philosophic practitioners." These "philosophic practitioners" would be recent graduates who provide effective and efficient services while also fulfilling the

responsibility of stewarding the growth of the broader tourism industry in which these services are provided (Tribe, 2012). Moreover, Wilson & von der Heide (2013) stated that there is a lack of research on how “sustainability” is integrated in tourism degrees. This study is based on a course of education for sustainability within the 1st-year business/tourism curriculum at an Australian regional university. With a qualitative sample of 16 academics and using an interpretive methodology, interviews aimed to identify the barriers in trying to incorporate sustainability. Three key themes were revealed: (1) a crowded curriculum; (2) staff and student resistance to sustainability; and (3) the realities of a complex, multicampus institution. These impediments will be important to consider if we want to engender a more transformational approach to sustainability leadership in tourism education. Therefore, Wilson & von der Heide (2013) concluded that for achieving a more revolutionary approach to sustainable leadership in tourism education, it will be crucial to take these obstacles into account. The paper of Boyle et al (2015) reinforces the importance of education for sustainability as a way of transforming ways of teaching and learning, emphasizing critical reflection on values and the active empowerment of students to make change. This qualitative paper analyzes the relationship between tourism lecturers’ understandings of sustainability and the way sustainability is taught and developed through curriculum. The results showed a wide range of ideological variances in the way lecturers positioned and taught sustainable tourism, from a “stronger” sociocultural/environmental focus to a “weaker” commercial emphasis. In tourism higher education courses, it was also clear that lecturers with a strong sustainability perspective were more likely to apply the transformative principles of activism, critical reflection, and political agency (Boyle et al., 2015).

In the blue cluster, the most cited author is Alexakis & Jiang (2019) with the paper *Industry Competencies and the Optimal Hospitality Management Curriculum: An Empirical Study*. This paper analysis the hospitality managers’ perceptions of the skills and knowledge of hospitality students and compare them to U.S. hospitality management undergraduate curricula. This quantitative study, with a sample of 206 managers analyzed the curricula from 20 leading U.S. hospitality programs and compared them to the survey results. The findings reinforced the crucial role of essential skills such as communication, critical thinking and problem solving. In order to satisfy the demands of entry-level management, the current study created a model that summarizes the kinds of abilities and knowledge required of hospitality students (Alexakis & Jiang, 2019).

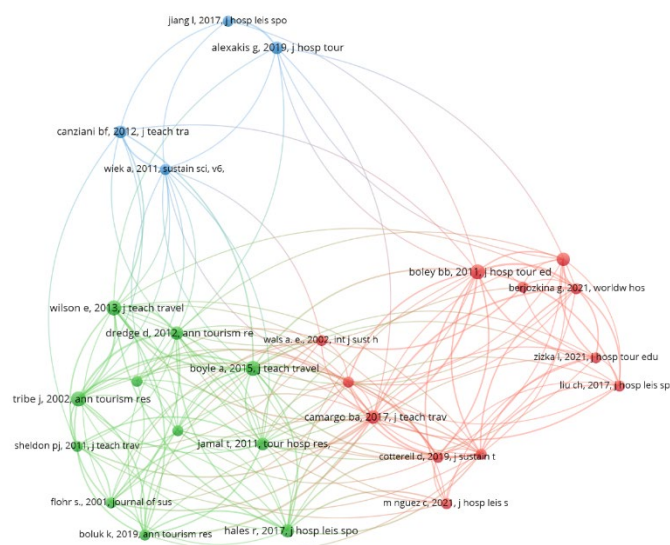


Figure 4: Co-citation analysis

#### 4. Conclusions

According to Siddaway et al. (2018) methodical and reproducible presentation and technique are hallmarks of systematic reviews, and they entail doing a thorough search to find all pertinent published and unpublished work on a topic; integrating search findings in a methodical manner; and evaluating the quantity, type, and caliber of evidence considering a specific research issue.

In this systematic literature review, the overarching aim was to give a systematic overview of literature on how sustainability is taught and integrated into Tourism and Hospitality courses and curricula and enhance knowledge of the idea of sustainability, particularly from the perspectives of Higher Education courses. All the

literature searched in April 2025 was conducted using the Web of Science database and attempts to focus on the sustainability issues applied to tourism and hospitality curriculum in higher education degrees. We pursued this aim by presenting the key evolutionary indicators (annual scientific production, knowledge areas, countries, journals, most relevant authors, and most cited papers) and this reveals several key findings.

First, there has been a notable increase in academic publications on this topic since 2021, indicating a growing recognition of sustainability as a critical component in hospitality and tourism education. The majority of research originates from Europe, Asia, and the Americas, with the U.S., Spain, and China leading in contributions.

The analysis of knowledge areas shows a strong emphasis on Business Management, Accounting, and Social Sciences, suggesting that sustainability is often framed within managerial and socio-economic contexts rather than purely environmental or ethical perspectives. The most influential papers highlight the importance of integrating sustainability across curricula (Tasdemir & Gazo, 2020; Boley, 2011) while also pointing out challenges such as resistance from faculty, curriculum overcrowding, and industry-driven educational priorities (Wilson & Von der Heide, 2013; Slocum et al., 2020).

Science mapping techniques further clarify the conceptual and intellectual structure of this field and keyword analysis identifies three main clusters: education and curriculum design, tourism management challenges, and student perceptions in hospitality. Co-citation analysis reinforces the influence of foundational works advocating for transformative, integrated sustainability education (Tribe, 2002; Boyle et al., 2015) and highlights ongoing debates about balancing industry needs with sustainability pedagogy (Alexakis & Jiang, 2019).

The leading journals in this domain, such as *Sustainability* and the *Journal of Hospitality, Leisure, Sport & Tourism Education*, reflect the interdisciplinary nature of the research. However, the relatively recent surge in publications suggests that the field is still evolving, with more longitudinal and impact studies needed to assess how effectively sustainability is being embedded in curricula.

This study demonstrates methods for incorporating sustainability into Hospitality and Tourism education, and the literature offers numerous instances of how this might be used and taught. A more complete view of the situation and strategy for tackling the current problems is made possible by the integration of the various academic fields' approaches to sustainability, which enhance one another.

In conclusion, while progress is evident, greater emphasis on pedagogical innovation, faculty training, and industry collaboration is essential to ensure that sustainability becomes a core—rather than peripheral—element of tourism and hospitality education.

## 5. Limitations and Future Research

While significant findings can be derived, the present review possesses certain limitations that must be acknowledged. First of all, the authors only consider literature from Web of Science database, and this can be very restraining. The reliance on Web of Science-indexed journals may exclude relevant studies from other databases, potentially overlooking alternative perspectives.

When analyzing the different perspectives of the authors and trying to develop keys for specific issues, it is still difficult to integrate the various outlooks on sustainable education in practice as the various types of knowledge and perspectives can be integrated through interdisciplinary collaboration, theoretical considerations, technological requirements, and practical relevance.

Considering the sample, it is dominated by research from the U.S., Spain, and China, with limited representation from Africa, South America, and Oceania. This restricts the generalizability of findings to global contexts, particularly in developing regions where sustainability challenges may differ.

Another limitation of the study is the very recent subject researched - the majority of analyzed papers (70%) were published after 2021, indicating that sustainability in tourism and hospitality curricula is an emerging field. This may limit the depth of insights, and the maturity of research trends and early citations may not fully reflect the impact of newer studies, as influential works require time to accumulate citations. To overcome this problem, the authors suggest repeating the study in the near future for richer and more complete study.

Future research should explore best practices for curriculum design, student engagement, and measurable educational outcomes to advance sustainability in this critical sector. It could investigate how sustainability integration in curricula evolves over time and compare different approaches from different educational systems

and assess whether early adopters of sustainability education (e.g., European institutions) demonstrate measurable differences in graduate outcomes compared to late adopters.

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## Ethics Statement

Not applicable.

## AI Declaration

AI was not used.

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