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Research Publications on Tourism Education: A Bibliometric Analysis of Dimensions (2010 – 2022)

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Abstract

This paper examines the emerging trends in research articles published on tourism education from 2010 to 2022. Researchers analysed a total of 1210 articles indexed in the Dimensions AI database for the number of authors, journals, citations, collaborating institutions, and source countries. The research publications in scholarly articles on tourism education show a gradual increase, with higher growth observed in 2017, 2020, and 2021. Prominent authors include Deale, Cynthia S., Ateljevic, and Irena, and prominent institutions include Hong Kong Polytechnic University, China and the United States appeared to be the most productive country in terms of articles and citations. "Learning", "Curriculum", "Career", "Internship program", and "Competencies and skills" were the most researched topics. The paper offers valuable insights for researchers, identifying productive authors, institutions, and popular keywords used in tourism education.

Keywords: Tourism Education, Tourism education research, Bibliometric analysis, Dimensions, Scientific mapping

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Introduction

Tourism emerged as a field of education and research from the 1900s to the early 2000s. Many scholars have published articles on tourism knowledge, curriculum, and research approaches, which have developed it into a full-fledged discipline. Researchers have published their activities on tourism education in various journals within the tourism domain, some of which span different disciplines. The Tourism Review, first published in 1943, is arguably the first scholarly journal in tourism research. Later, many other research journals in tourism education began appearing. The Journal of Hospitality, Leisure, Sports and Tourism Education in 1995, the Journal of Hospitality and Tourism Education in 1997, and the Journal of Teaching in Travel and Tourism in 2001 addressed scholarly research issues in tourism education (Stergiou et al., 2002).

Airey (2015) argued that tourism programs achieved remarkable success worldwide in attracting students and scholars with diverse research interests. With intensive research on tourism education in recent years, several researchers published articles introducing different aspects of tourism education. As evidenced by the wide range of publications, the research has reported the prevailing teaching-learning practices in tourism education and contributed to strengthening it. Many researchers, such as Sheldon & Fesenmaier (2015), Hsu et al. (2017), and Ilkan et al. (2017), have published many types of research on various dimensions, e.g., teaching-learning practices, curriculum design and development, effective use of ICT in curriculum transactions of tourism education.

Tourism education and research as an independent discipline has made a significant achievement since its existence. It presents an excellent opportunity to reflect on the progress made so far. Therefore, the researchers can gain valuable insights into the overall development, trajectory, and goals by examining recurring research topics, methods, and widely accepted theories in tourism education. This assessment can shed light on success stories and effective educational strategies in the field. Considering the benchmark of these aspects provides a deeper understanding of the progress and impact of research on tourism over the years.

The paper is organised into six sections as below. The subsequent sections detail the need for bibliometric analysis, the method followed, the data and analysis, and the results and discussion.

Why a Bibliometric Analysis using Dimensions?

Bibliometric analysis has become increasingly recognised and valuable for evaluating academic outputs in specific research domains. It is a powerful tool, offering insight into historical trends and the ability to make informed predictions about future directions within a particular field. Chen et al. (2019) noted that bibliometric analysis is a standard option for evaluating the academic output of a specific publication source. Researchers and academics employ this approach for various purposes, including tracking academic article trends, evaluating journal performance, uncovering collaboration patterns, dissecting research components, and unveiling the intellectual structure of specific domains within the existing literature (Chen et al., 2019). Donthu et al. (2021) have provided detailed guidelines for conducting bibliometric analyses, particularly useful when dealing with large datasets impractical for manual review. This method efficiently condenses extensive bibliometric data into insights about research structures and emerging themes. Traditionally, prior studies have relied heavily on proprietary databases like Scopus and Web of Science (Cole-Remis et al., 2023b). However, these databases often require costly institutional subscriptions, limiting accessibility.

In contrast, Dimensions offers access to a substantial volume of open-access research publications, making it an attractive resource for comprehensive bibliometric analysis (Mouratidis, 2019). Utilising Dimensions gives researchers the advantage of accessing a broad spectrum of research literature, irrespective of accessibility restrictions, offering a more comprehensive view of the research landscape. Consequently, the use of Dimensions for bibliometric analysis has gained popularity due to its open-access nature, providing accessibility to a wide array of scholarly publications and datasets, including subscription-based journals, preprint servers, institutional repositories, and other scholarly databases. This database choice has found favour with scholars such as Şimşek & Kalipçı (2023) in their study on higher tourism education and curriculum.

Gap

The fields of tourism and education have both been subject to comprehensive bibliometric analyses (Koseoglu et al., 2016; Mulet-Forteza et al., 2019; Sigala et al., 2021; Heradio et al., 2016). Nevertheless, it is noteworthy that the domain of tourism education, despite its substantial breadth and importance, has been relatively underrepresented in bibliometric studies. This gap in the literature reveals a critical knowledge deficit within this particular area of study. To rectify this deficiency, the primary objective of this research is to scrutinise the influence of research within the domain of tourism education in the academic community. The aim is to comprehensively assess how these studies contribute to expanding academic knowledge in the field. By Employing the methodology of bibliometric analysis, the study seeks to furnish valuable insights into the existing body of literature, elucidate prominent research trends, and identify discernible knowledge voids within the domain of tourism education. By addressing these objectives, this research contributes significantly to understanding the field's current state and potential avenues for further investigation.

Method

The literature related to tourism education was systematically searched and gathered from the Dimensions AI database, focusing on addressing specific research questions (RQs) identified for the study. These research questions were guiding criteria for selecting relevant literature, ensuring a targeted and comprehensive approach to gathering information.

RQ1: What are the significant research findings and emerging developments in tourism education?

RQ2: Who are the prolific authors and articles contributing significantly to tourism education research?

RQ3: What are the collaborative patterns and networks among authors, affiliating institutions, and countries in tourism education?

RQ4: What are the prevailing research topics/themes and commonly used keywords or terms discussed in the titles and abstracts of studies

related to tourism education?

Firstly, the study employed a performance analysis and scientific mapping. Small (1973) argued that scientific or bibliometric mapping represents how disciplines, fields, specialities, individual articles, and authors are related. Chen et al. (2019b), Sharma et al. (2020), Khanra et al. (2021), Menon et al. (2022), and Coll-Ramis et al. (2023) were amongst others used for bibliometric mapping to identify research landscapes in their studies on the bibliometric analysis. The researchers conducted a secondary analysis by arranging the articles in descending order based on citation count. They examined relevant articles to create maps depicting research topics and different structures within the dataset. The methodology involved several steps, including retrieving the dataset, cleaning it, and processing it. They performed these steps after applying the inclusion criteria outlined in the PRISMA diagram (Figure 1).

Selection Criteria, and Data Retrieval and Processing

The researchers used three basic steps to search and filter the data: search, screening, and analysis. Research on tourism education for the period 2010 - 2022 was retrieved from the Dimensions database, using the search string Publication name = ("Tourism education" OR "Tourism higher education"). The researchers then limited the search to research articles only. They retrieved a total of 2516 articles up to December 28, 2022. They exported the bibliographic data as a CSV formatted corpus file for each publication, including details such as Title, Abstract, Journal/Source title, Publication year, Volume, Issue, Pagination, Authors, Authors' affiliations–Institution and Country, Times cited, and Cited references. The researchers excluded 1306 duplicate, non-article type, and irrelevant studies based on title and abstract information. This left 1210 articles for performance analysis, out of which they selected 860 of the most relevant articles for topic analysis.

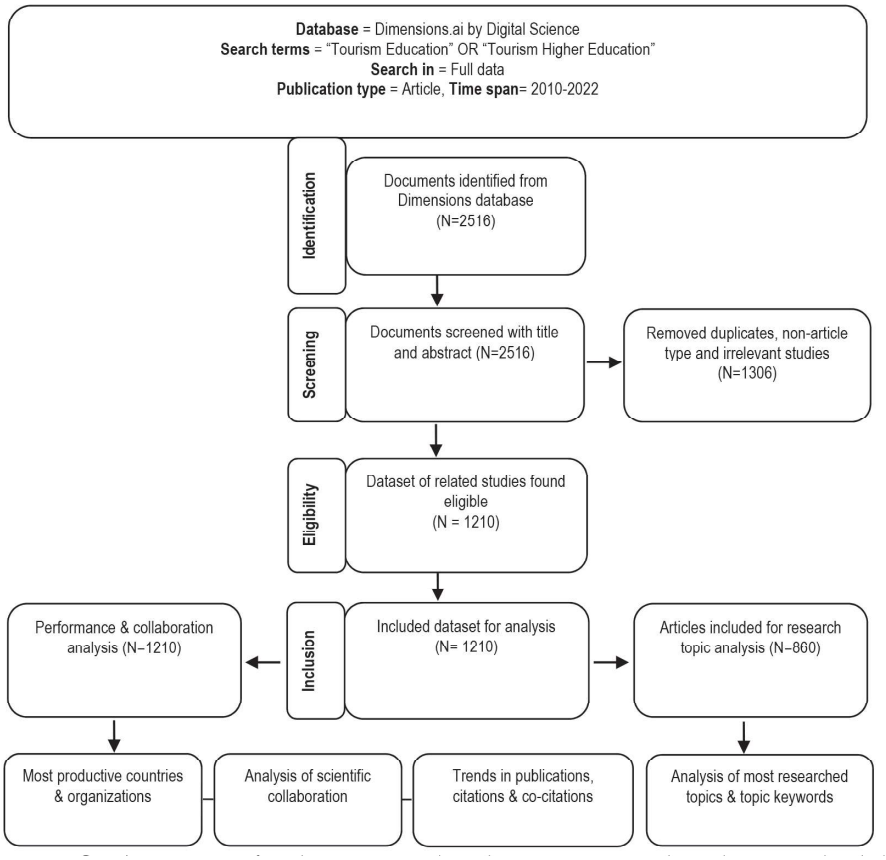


Figure 1. PRISMA Diagram for data retrieval and processing and analysis methodology

Data Analysis

Bibliometric analysis is one of the most important measures for evaluating scientific output, and it is used to analyse bibliographic data from research studies (Chen et al., 2019c). All the results in the presented article were analysed using Microsoft Excel-365. In the analysis of prolific countries and institutions, articles from England, Scotland, Ireland, and Wales were combined as being from the UK, and articles from Hong Kong as being from China. The researchers combined articles from Wales, which was from the UK, and articles from Hong Kong, which was from China. However, they counted articles affiliated with Taiwan individually. They took the Impact

Factors from CiteScore-2022. They identified articles from institutions and countries by the presence of at least one author in the publications. After that, they displayed the articles by sorting them into the top ten in the corpus. The researchers analysed the data by manually screening bibliographic data and using VOSviewer software. Subsequently, they classified the results based on the bibliographic data into the following bibliometric indicators –

1. The researchers used Publications Count (TP) and Citations Count (TC) for the trend analysis of the article and citation counts, the most cited articles, productive journal sources and authors, and prolific countries and institutions.

2. First-author Articles (FA) and Corresponding-author Articles (CA) from the most cited articles published by first-authors and corresponding authors are selected.

3. Cite-score (CS) and TC/TP for impact factor and average citation per article for most productive journals published articles on tourism education in the dataset.

4. Links and Total Link Strength count (TLS) for the number of scientific collaborations of authors, articles, journals, countries and institutions with others, and the total strength of links among them within the research community (Petrovich, 2022).

Finally, the primary research topics and keywords or terms discussed in the titles and abstracts of tourism education research publications were discussed.

Results

From 2010 to 2022, the total number of publications considered for further analysis is 1210. The data showed that 1210 research articles published by 2295 authors in 306 journal sources received 12,291 citations; these articles have scientific collaboration among 638 institutions in 78 countries. Results of the analysis are displayed, including article and citation trends and analysis of the most influential article, authors, and prolific countries and institutions. Furthermore, the researchers analysed topic keywords and their distributions in related studies.

Trend analysis of articles and citations count.

The trends shown in articles and citations count per year over the given period in Figure 2. The number of articles published yearly on tourism education has generally shown an increasing trend. In 2010, 56 research articles were published on tourism education, which decreased slightly in 2011, i.e., 45. The numbers remained in fluctuation until 2016. Then, there was a substantial upsurge in the publications count from 2017 to 2021, followed by a slight decrease in 2022. Vis-à-vis citations, the annual citation count of 1210 articles showed a fluctuating trend, i.e., 1000±200 citations, with some increase in 2017 (i.e., 1501). Overall, research articles published on tourism education observed no significant annual increase in citations. Such results demonstrate that the research on tourism education had a usual impact and influence on the research community for the period. Therefore, it is reasonable to assume that the annual number of citations may not continue to be convincing in the future. In contrast, the academic community's interest in research on tourism education is increasing.

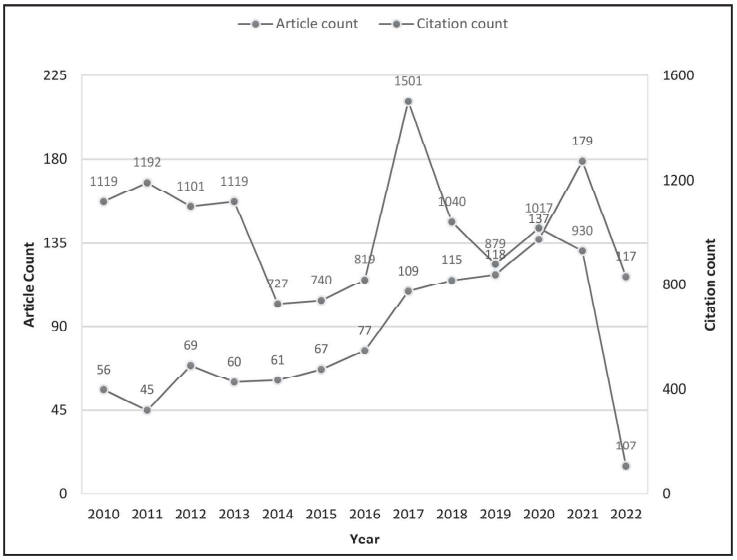


Figure 2. The trend analysis of the article and citation counts

Most Influential Article and Author

Citation is the number of times an article is cited by other articles and

vice-versa in the database (Rao & Shukla, 2022). Citation analysis of the dataset revealed the citation count for each article published on tourism education. Altogether, 1210 articles received overall 12291 citations in the bibliographic database. Bibliometric indicators showed the most influential research articles on tourism education, ranked in the top ten in Table 1. They received more than 12 % (1530) citations count of overall citations. The article "New Realities: A Systematic Literature Review on Virtual Reality and Augmented Reality in Tourism Education Research", authored by Yung & Lattimore (2017), was seen as the most influential article, followed by the article "Hopeful Tourism: A New Transformative Perspective" authored by Pritchard et al., (2011) in terms of citations count. Both received high citation counts, with 369 citations and 288 citations, respectively. However, in terms of the highest links among co-authored articles, the article "Research on Hospitality and Tourism Education: Now and Future" authored by Kim & Jeong (2018), followed by "Essential Hospitality Management Competencies: The Importance of Soft Skills" authored by Sisson & Adams (2013), was the most influential article with higher individual links, i.e., 57 links and 79 citations count, and 48 links and 110 citations count respectively.

Table 1. Top 10 most cited articles on tourism education ranked by citation count

Title of the Articles & Rank	Authors	Source	TC	Links
1. "New realities: a systematic literature review on virtual reality and augmented reality in tourism education research"	Yung & Lattimore (2017)	Current Issues in Tourism	369	6
2. "Hopeful tourism: A New Transformative Perspective"	Pritchard et al., (2011)	Annals of Tourism Research	288	24
3. "Tourism students' entrepreneurial intentions"	Gurel et al (2010)	Annals of Tourism Research	145	11

Title of the Articles & Rank	Authors	Source	TC	Links
4. "Responses to COVID-19 in Higher Education: Social Media Usage for Sustaining Formal Academic Communication in Developing Countries"	Sobaih et al., (2020)	Sustainability	124	4
5. "Impact of online classes on the satisfaction and performance of students during the pandemic period of COVID 19"	Gopal et al., (2021)	Education and Information Technologies	119	1
6. "Essential Hospitality Management Competencies: The Importance of Soft Skills"	Sisson & Adams (2013)	Journal of Hospitality & Tourism Education	110	48
7. "On the need for critical pedagogy in tourism education"	Belhassen & Caton (2011)	Tourism Management	109	41
8. "The Tourism Education Futures Initiative (TEFI): Activating Change in Tourism Education"	Sheldon et al., (2011)	Journal of Teaching in Travel & Tourism	99	46
9. "Tourism education and curriculum design: A time for consolidation and review?"	Fidgeon (2010)	Tourism Management	88	41
10. "Research on hospitality and tourism education: Now and future"	Kim & Jeong (2018)	Tourism Management Perspectives	79	57

Those with noteworthy performance are indicated using bold values to highlight.

Bibliometric indicators TP and TC analysed the higher citation count of an author's publications in the research domain and revealed the impact of the individual authors (Borgohain et al., 2022). Table 2 displayed the ten most prolific authors sorted by the ranks of publications count (TP), citations count (TC), first author articles (FA), corresponding author articles (CA) and their respective total link strengths (TLS). A total of 2295 authors had contributed 1210 articles in the research domain "tourism education", with an average of 1.89 per article. "Deale, Cynthia S" from "East Carolina University in the USA" was the prolific author and ranked first in the publications count (TP) as well as in the first-author articles (FA) count, including 32 articles and 28 articles, respectively. The first author contributes the most, so it would make sense for him to get the lion's share of credit as the dominant author here (Marušic' et al., 2004). Next, "Law, Rob" from "Hong Kong Polytechnic University in China", who contributed 17 articles, was the second most influential author, while topped with 16 publications as the corresponding-authored, including one first-authored article.

The corresponding author supervises the planning and execution of the study along with the writing of the article, which also plays a vital role in the research community. Therefore, he can also be considered no more but no less effective than the first author (Burman, 1982). In terms of scientific collaboration, Law Rob, Goh Edmund and Ruhanen Lisa were found to be the first, second and third highest number of scientific collaborations, with 294, 240 and 146 TLS, respectively, among the academic community. Of the ten most productive authors, three were from Australia-based institutions, and two were from China- and Taiwan-based institutions. Of the remaining, one was from the US, Switzerland, and Canadian institutions. The analysis of the most influential articles and authors reflects the highly cited articles and authors and their links to scientific collaboration, which substantially impact tourism education research among the research community.

Table 2. Top 10 most productive authors of articles on tourism education

Author & Rank	Affiliation (FA or CA)	TP	FA (R)	CA (R)	TC (R)	TLS
1. Deale, Cynthia S.	East Carolina University, USA	32	28 (1)	4 (5)	145 (14)	136
2. Law, Rob	Hong Kong Polytechnic University, China	17	1 (7)	16 (1)	304 (4)	294
3. Goh, Edmund	Edith Cowan University, Australia	16	12 (2)	4 (4)	279 (5)	240
4. Ruhanen, Lisa	University of Queensland, Australia	10	8 (3)	2 (6)	172 (6)	146
5. Horng, Jeou-Shyan	National Taiwan Normal University, Taiwan	9	5 (4)	4 (4)	117 (20)	98
6. Cheung, Catherine	Hong Kong Polytechnic University, China	8	2 (6)	8 (2)	159 (9)	90
7. Liu, Chih-Hsing	Ming Chuan University, Taiwan	8	2 (6)	6 (4)	126 (17)	97
8. Cantoni, Lorenzo	Università Della Svizzera Italiana, Switzerland	7	-	7 (3)	154 (12)	66
9. Sigala, Marianna	University of South Australia, Australia	7	3 (5)	4 (5)	148 (13)	58
10. Caton, Kellee	Thompson Rivers University, Canada	4	-	4 (5)	165 8)	75

Bold values are used to highlight those with noteworthy performance.

Prolific Countries and Institutions

To analyse the impact of prolific countries and institutions that contributed to each article, the most prolific ones were assessed using three bibliographic indicators, i.e., TP for articles count, TC for citations count and TLS for total scientific collaborations among the researchers. Of the 1210 articles found eligible in the analysis, a total of 78 countries were found to have contributed to research on tourism

education. Despite this sizable geographical distribution of article contributors, the top 10 countries by publications count contributed 64.55% of the total articles (TP) (Table 3). The US was the most prolific country, followed by China, Australia, the UK, and Taiwan, the top five with publications (TP) of 245 articles, 136 articles, 101 articles, 81 articles and 61 articles, respectively. At the same time, these countries were also in the top five regarding receiving citations count (TC). At the same time, these countries were also in the top five regarding receiving citations count (TC). The US topped with 3139 citations, followed by Australia, the UK, China and Taiwan with 1694, 1611, 1515 and 904 citations, respectively.

Regarding prolific institutions, the data demonstrated the widespread impacts of articles published by researchers associated with United States-based tourism education institutions. Their total contribution to the corpus regarding publications and citation counts are more than 20% and 28%, respectively (Table 3). Hong Kong Polytechnic University from China contributed the highest, with 80 articles and 1006 citations, and it achieved a total link strength of 453 through collaboration with other researchers/institutions. Subsequently, Griffith University and the University of Queensland Australia each published 25 articles, garnering 627 and 364 citations, respectively. Among the top ten institutions, up to four were from the USA, followed by three from Australia and one from China, Taiwan, and Egypt. This highlighted the dominant role of institutions based in the United States in publication output. Overall, Hong Kong Polytechnic University of China emerged as a prolific institution in terms of total publications, citations, and collaboration with other institutions.

Table 3. Top 10 countries and institutions ranked by the article count

Country				Institutions			
Rank	**TP**	**TC (R)**	**TLS**	**Rank**	**TP**	**TC (R)**	**TLS**
1. United States	245	3139 (1)	1175	1. Hong Kong Polytechnic University, China	80	1006 (1)	453
2. China	136	1515 (4)	947	2. Griffith University, Australia	25	627 (2)	138
3. Australia	101	1694 (2)	799	3. University of Queensland, Australia	25	364 (3)	180
4. United Kingdom	81	1611 (3)	510	4. East Carolina University, USA	20	196 (11)	55
5. Taiwan	61	904 (5)	427	5. Iowa State University, USA	18	143 (16)	70
6. Turkey	40	482 (6)	195	6. California State Polytechnic University, USA	17	222 (9)	87
7. Spain	34	350 (9)	144	7. National Kaohsiung University of Hospitality and Tourism, Taiwan	16	270 (5)	93
8. Egypt	31	340 (10)	91	8. University of Nevada, Las Vegas, USA	16	203 (10)	77
9. India	26	337 (11)	143	9. Helwan University, Egypt	14	268 (6)	41
10. Switzerland	26	301 (13)	133	10. Edith Cowan University, Australia	14	195 (12)	163

Bold values were used to highlight those with noteworthy performance.

Analysis of the Scientific Collaborations

Scientific collaboration is a set of extensive repeated connections among researchers that represent links based on publishing articles over time on related topics such as tourism education/tourism higher education (Pestana et al., 2019). Collaborative scientific research relationships among countries and institutions are visualised through social network analysis using VOSviewer (Van Eck & Waltman, 2010). It analysed data and presented tables and density maps for bibliometric visualisation (Hu, 2020). Scientific collaboration is a set of extensive recurrent connections among academics that represent links based on publishing articles over time on related topics, such as tourism education/tourism higher education, in the context of network mappings. The study focuses on analysing collaboration between countries and institutions and co-citation among authors.

Bibliographic Coupling by Countries

In contrast to co-citation, bibliographic coupling occurs when two publications cite a third publication (Kessler, 1963), indicating an overlay in their reference lists. The study analysed bibliometric coupling among countries based on the productivity of countries that produced five or more articles receiving at least one citation, totalling 36 out of 78 countries meeting this threshold. The strength of scientific collaborations with other countries was assessed based on the highest link strength. Among these 36 countries, the top ten most collaborative countries showed a total link strength of 4564.

The analysis categorised countries into four clusters, with leading countries in each cluster determined by article counts, citation counts, and total link strengths, reflecting their geographical distribution. Cluster United States led Cluster I, followed by China, Taiwan, South Korea, Turkey, Cyprus, and Egypt. Cluster II, led by Australia, included New Zealand, Spain, Canada, Japan, and Indonesia. India emerged as the leader in Cluster III, alongside South Africa and Malaysia. Cluster IV, with Switzerland and UAE, was led by the UK.

Overall, this mapping provided insights into the social structure of the 20 most collaborative countries regarding international collaborations. The USA, China, Australia, the UK, and Taiwan

emerged as the top five most collaborative countries, demonstrating substantial collaboration links across various clusters, with total link strengths of 1175, 947, 799, 510, and 427, respectively.

Bibliographic Coupling by Institutions

The study examined bibliographic coupling among institutions based on the productivity of institutions that published a minimum of 5 articles, each receiving at least five citations. Out of 638 institutions considered, 55 institutions met this prolific threshold. Researchers assessed the total strength of scientific collaboration by concentrating on institutions with the highest link strength. They categorised the collaborative research networks among the ten most prolific institutions into four clusters. In Cluster I, National Kaohsiung University emerged as the most prolific institution, followed by Grand Valley State University, Cyprus University of Technology, University of North Texas, University of Macau, Akdeniz University, and University of Plymouth. Cluster II was led by Hong Kong Polytechnic University, followed by Hes-so-Vaud, Ming Chuan University, Sun Yat-sen University, and National Taiwan Normal University, indicating strong collaboration within the entire dataset.

Further, Cluster-III comprised four institutions, i.e., Edith Cowan University, Southern Cross University and Washington State University, led by Griffith University, with the most productive institution in the cluster. Last, the Cluster-IV again consisted of four institutions led by the University of Queensland, followed by California State Polytechnic University, Iowa State University and East Carolina University. Therefore, Hong Kong Polytechnic University from China, the University of Queensland and Edith Cowan University from Australia were the top three most collaborative institutions with total link strengths of 453, 180 and 163, respectively. However, Edith Cowan University displayed a tenth position regarding article count. Most of the institutions in the network were located in the United States, and these institutions collaborated closely within this cluster.

Co-citation Analysis of Authors

Co-citation analysis occurs when a publication cites a pair of publications, which is considered co-cited (Khanra et al., 2021b).

It is a bibliometric indicator measured through the number of bibliographic references in the dataset (McCain, 1991). Authors who have frequently co-cited each other in the dataset along with their citations count and connections, the relevance of topics among their co-cited publications form a set of literature networks (Shin & Purdue, 2019). The VOSviewer visualisation displayed four clusters of authors by four coloured nodes (Figure 3). The most significant node is red in Cluster-I, led by John Tribe to 31 authors. Among them, David Airey, Chris Cooper, Pierre Benckendorff, Marianna Sigala, Dianne Dredge and Honggen Xiao have mostly co-cited each other in their publications. Cluster II refers to the yellow nodes, which Rob Law led. These had 18 authors, such as Lisa Ruhanen, Anastasios Zopiatis, Graham Busby and Terry Lam, who mostly co-cited each other with solid link strengths. Similarly, the green nodes consisted of 23 authors in the cluster, which had strong co-citation connections among Tom Baum, Edmund Goh, Scott Richardson and Paul Barron, as led by Tom Baum. Finally, the blue nodes, led by Dogan Gursoy, co-cited each other in their publications on tourism education, emerging as a cluster of authors.

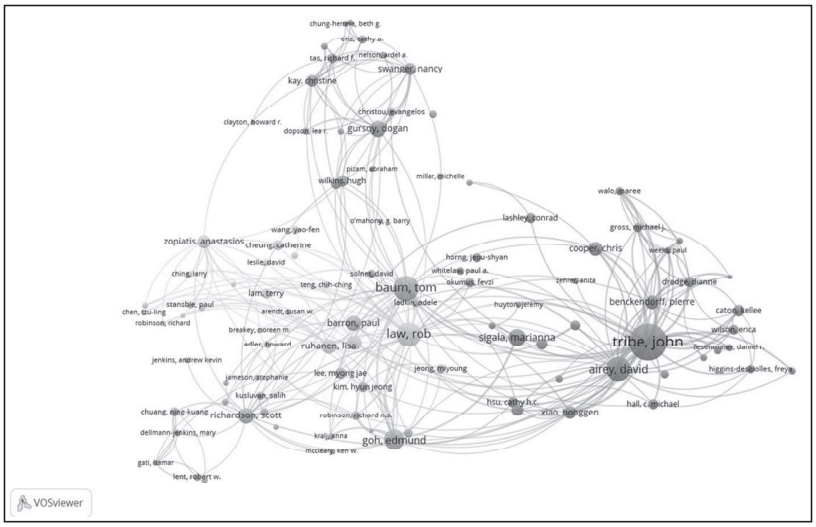


Figure 3. Visualisation of co-citation analysis of authors' publications on tourism education

Source: Authors, based on Dimension database; figure created using VOSviewer software.

Most Productive Journals

Articles on "Tourism Education" in journals indexed in the Dimensions were analysed. In the analysis, 26 journals out of 306 were sorted based on the criteria of having at least five articles published and receiving citations from at least one in the database. Bibliometric Indicators such as TP, TC (R), CS (R), TC/TP and TLS were employed to assess the top ten tourism journals (Table 4). The result revealed that the "Journal of Hospitality and Tourism Education" is the top-ranked journal that has published the maximum number of articles on tourism education for the period (Köseoglu & King, 2021). It accounted for 267 articles (≈ 22%) of the total articles in the corpus. The "Journal of Hospitality Leisure, Sport & Tourism Education" and the "Journal of Teaching in Travel & Tourism" were the subsequent most productive journals, with 232 articles and 137 articles, respectively. More interestingly, two journals made the most impact on the field with their publications based on two indicators, i.e., CiteScore and citations per article separately. Both of these were "Annals of Tourism Research" and "Tourism Management", one of which had the highest citation rate (TC/TP = 78.14) and the other having the highest CiteScore (CS = 16.5). The citation rate of journal publications is a direct indicator for assessing the impacts of journals. The higher the citation rate per article, the greater the journal's impact on the field (Kolle, 2017).

Regarding collaborative patterns, total link strengths correspond to TP and TC. The "Journal of Hospitality Leisure, Sport & Tourism Education" were the most collaborated with the TLS of 821, followed by the "Journal of Hospitality & Tourism Education", and the "Journal of Teaching in Travel & Tourism" with the TLS of 817 and 664, respectively. Therefore, the analysis demonstrated that the journal does not need to be a high-impact factor journal to receive higher citations or CiteScore.

Table 4: Top 10 journals ranked by the article count

Rank	Journal	TP	TC (R)	CS (R)	TC/TP	TLS
1	Journal of Hospitality & Tourism Education	267	2662 (2)	1.8 (16)	9.97	817
2	Journal of Hospitality Leisure, Sport & Tourism Education	232	3236 (1)	3.1(11)	13.94	821

Rank	Journal	TP	TC (R)	CS (R)	TC/TP	TLS
3	Journal of Teaching in Travel & Tourism	137	1416 (3)	1.5(19)	10.33	664
4	Anatolia - Turizm Araştırmaları Dergisi	15	200 (9)	2.2(15)	13.33	36
5	Worldwide Hospitality and Tourism Themes	15	61 (15)	2.7(13)	4.06	45
6	Journal of Hospitality and Tourism Management	14	276 (6)	5.3(7)	19.71	122
7	Current Issues in Tourism	13	629 (4)	8.6(4)	48.38	81
8	Tourism Management Perspectives	12	255 (8)	6.8(6)	21.25	105
9	Annals of Tourism Research	7	547 (5)	7.0(5)	78.14	47
10	Tourism Management	5	272 (7)	16.5(1)	54.40	84

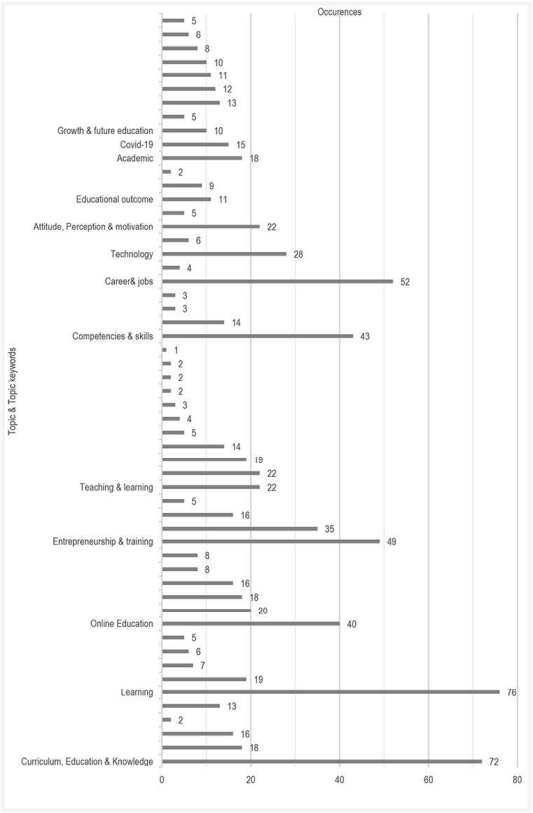
Bold values were used to highlight those with noteworthy performance.

Most Popular Research Areas and Topic Keywords

Critical components of topic analysis are each article's title, keywords, and abstract. **Zhong et al. (2016)** argued that titles, abstracts, and article keywords are suitable for conceptual reviews because they usually represent the noteworthy content of articles. **Altmami and Menai (2022)** further mentioned that abstracts can present article summaries regarding research aims, problems, and significant findings. Considering this, we performed a content analysis of the title and abstract of the articles to identify keywords for the topic. As argued by **Železnik et al., 2017**, "topic keywords most concisely present the content authors would like to communicate to the research community". In the analysis, we manually screened and analysed 810 articles extracted from a total of 1210 articles in the dataset, identifying 860 primary topic keywords. We later unified all these keywords into 20 major research areas on tourism education, considering their distributions in the articles (Figure $). The results showed that "curriculum, education and knowledge" was the most popular research topic, discussed in 121 articles. Following this, "learning" and "online education" were the second and third most discussed topics, appearing in 113 and 110 articles, respectively.

In addition to these topics, other primary keywords included "curriculum planning design and development" (72 occurrences), "learning tourism studies" (76 occurrences), "internship program" (49 occurrences), "online" (40 occurrences), and "training" (35 occurrences), distributed in the titles of articles on tourism education. This indicated that "curriculum, education & knowledge", "learning", "online tourism education", and "entrepreneurship & training" were the most researched areas within tourism education.

In contrast, keywords that were least used, such as "distance/open/ distance learning", "women and tourism education", and "assessment and evaluation" among tourism students, may represent emerging areas of research. The term "online teaching/e-learning" emerged as an issue, possibly due to technological advances in tourism education. These terms are closely related to the research topics of "tourism education" and "tourism higher education."



Abbreviations: MOOCs =Massive open online courses, AR & VR = Augmented reality & virtual reality, ICT = Information & communication technology, SDG= Sustainable development goals, TEFI = Tourism education future initiative, HRM =Human resource management.

Figure 4: Major study topics, topic keywords used for research in tourism education (N=860)

Discussion

Bibliometric analysis quantifies academic literature, including publications, authors, journals and institutions and analyses to provide insights into the status of research in the field. We have analysed the essential research contributions, trends and academic structure of the research journals on tourism education to answer RQ1. The results show that the production of research articles increased after 2017, with the highest in 2021. In contrast, there was instability in their citations, i.e., in 2010, the citations of articles increased in 2021 and 2017, and citations were the highest. This is probably due to the discussion on tourism (especially in India) as an emerging employable sector, as well as the research on new dimensions of tourism education by academics of tourism education. There was an increase in the number of articles and citations of research articles between 2019 and 2021 compared to 2010. Due to the lockdown amid the COVID-19 pandemic, the articles related to the use of advanced technology in tourism education, e.g., ICT, online/ e-learning, and virtual classrooms, and their impacts on teaching-learning have increased. It witnessed geographical disparities in research output on tourism education due to the varying levels of digitisation in different countries. Technological innovation capabilities in developed countries are more advanced than those in developing countries.

Analysis revealed that the USA is the most productive country, followed by China and Australia. Interestingly, on the contrary, the journals with the highest number of publications (Journal of Hospitality & Tourism Education published by Taylor and Francis Ltd), the highest number of citations (Journal of Hospitality Leisure, Sport & Tourism Education published by Oxford Brookes University) and journal with highest CiteScore (Tourism Management) are from the UK, respectively. In contrast, the journal ranks third in publications

and citations (Journal of Teaching in Travel & Tourism published by Routledge) based in the USA. These journals and observations also had the highest geographic influence in the studied dataset. The difference between the USA being the leader in publications and the UK being the leader in publishing journals may be due to the number of articles included in the USA selection process. The USA ranks top in most research publications, but most journals on tourism education are based in the UK.

Additionally, the journals are based in Turkey, China, and Egypt. The dataset comprises articles authored mainly by the top three countries: the USA, China, and Australia. On average, the first two authors authored articles in the corpus, with an additional 1.96 authors, indicating multiple authorships among the remaining contributors. These articles are widely cited, with an average of 10.06 citations per article and 1.13 annual per article. However, two articles by a corresponding author, namely Ateljevic and Irena from Wageningen University & Research, Netherlands, are the most widely cited in the dataset. Interestingly, most of the citations were in 2010, with an average annual number of citations per paper of 18.29, whereas significantly less, 8.75 per article in 2022 and even less, 7.72 per article in just the previous year, i.e., in 2021. This is possible because academicians published the most articles during the COVID-19 pandemic in 2020, but there has been an annual decline in total citations.

The analysis focused on the most influential authors, citations, and cited articles in tourism education research (RQ2). The findings revealed that Cynthia S. Deale from East Carolina University, USA, and Rob Law from Hong Kong Polytechnic University, China, were the most productive authors. In terms of citation analysis, the articles "New Realities: A Systematic Literature Review on Virtual Reality and Augmented Reality in Tourism Education Research" by Yung & Lattimore (2017) and "Hopeful Tourism: A New Transformative Perspective" by Pritchard et al. (2011) emerged as the most cited. Prominent journals such as "Current Issues in Tourism" and "Annals of Tourism Research," recognised as leading publications in tourism education, published these articles.

RQ3 aimed to investigate the collaborative patterns among authors, affiliating institutions, and countries of research on tourism education. We employed network visualisation and bibliometric coupling to analyse the co-cited author's data corpus file for collaboration between countries and institutions **to achieve this.** The USA, China, Australia, and the UK are the most collaborative based on article and publication counts. In terms of country collaborations, Hong Kong Polytechnic University (China), the University of Queensland, Edith Cowan University, Griffith University (all from Australia), and Washington State University (United States) had the most prominent collaborative networks. A majority of these institutions were located in the USA. Furthermore, the co-citation analysis of authors revealed that John Tribe, Tom Baum (UK), and Rob Law (China) were the top three authors with the highest co-citations. The collaboration between the USA and Australia, along with China, Hong Kong, and Taiwan, stands out in the article, and the citations count in research on tourism education.

This study concluded by analysing the co-occurrence of topics and commonly used keywords within the research articles on tourism education research (RQ4). The result revealed that learning, curriculum, career, internship program, and competencies and skills are the keywords most frequently used in the topics. Numerous studies have also shown that many works that have analysed tourism education have used similar keywords, such as curricula, pedagogical models and programs (Belhassen & Caton, 2011), educational innovation (Christou & Sigala, 2002), employment issues of academics and professional skills (Huang & Baker, 2021), collaboration of academia and industry for tourism education and research. Furthermore, many studies have highlighted emotional intelligence, ethics, networking, and communication as skills and competencies required in tourism (Bharwani & Jauhari, 2013). Also, the sustainable and ethical attitudes in tourism depending on their level of education have been studied by Seraphin and Thanh (2020).

Conclusion

This research provides a comprehensive overview of tourism education research, identifying prominent journals, authors,

universities, and countries. Utilising the Dimensions database and VOSviewer software, the study analyses articles of most contributors, prolific countries and institutions published from 2010 to 2022. The number of articles and citations fluctuated, peaking in 2017. Notable authors include Cynthia S. Deale and Rob Law. Critical articles include "New Realities: A Systematic Literature Review on Virtual Reality and Augmented Reality in Tourism Education Research" and "Hopeful Tourism: A New Transformative Perspective." Leading journals in this domain are primarily from the USA and the UK, while international collaborations involve the USA, Australia, China, Hong Kong, and Taiwan.

Further, the study included the analysis of co-occurring keywords to uncover research interests and trends in tourism education. It identified emerging research areas, including curriculum, online education, entrepreneurship, competencies, and educational technology. These developments are driven by technological innovations and modern teaching practices, expanding opportunities in higher education. In brief, new teaching and learning methods, online education with technology integration, and the use of social media represent the future of robust advancements in tourism education.

Implications, Limitations and Future Research

The present study identified prolific contributions to research on different "Topics on Tourism Education" and explored their scientific collaborations. Moreover, subject-based bibliographic analysis presented a comprehensive overview of the tourism education community. The findings would prove valuable to decision-makers in allocating resources and determining direction and policies in the field of education and research in tourism. Additionally, researchers would be able to identify the most established and prestigious journals of research in tourism education that significantly impact citations.

Like others, this study also has some limitations. First, the analysis is based entirely on data from the Dimension AI database between 2010 and 2022, and the way VOSViewer performs the analysis may limit the accuracy and reliability of the bibliographic data in terms of quality and coverage despite the extensive collection of articles. Further, due to the vast amount of quantitative data available in the

database, the analysis may not fully capture the nuances, complexities, or qualitative aspects of research in tourism education.

Bibliometric analysis can be applied to any bibliographic entity bibliometric unit and is not limited to studies of journal citations. (Hall, 2011). Waltman and van Eck (2010) argued that although the analysis method used in the study is not very accurate, it is considered adequate. Therefore, in future research, researchers could consider using other widely used databases, such as Scopus or WoS, for a more comprehensive analysis. Furthermore, this analysis could be complemented with a systematic review of specific research articles, e.g., qualitative methods, to gain a more holistic understanding of the topic. Next, regular updating of the bibliography and extending the analysis period will help future studies reflect the field's current state more comprehensively. Finally, comparing bibliographic studies with other fields or disciplines in tourism education will also provide valuable interdisciplinary insights.

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