Co-citation Analysis on Popular References Regarding Cross-Border Tourism

Elvis Salouw[1], Bakti Setiawan[2], & Ahmad Sarwadi[3]

[1]Institut Teknologi dan Bisnis Kristen Bukit Pengharapan
[23]Universitas Gadjah Mada
Correspondence email: elvisalvred@gmail.com

Notes	ABSTRACT
  	Cross-border tourism (CBT) is a new discourse that attracts the attention of researchers from various scientific fields. Along with the development of CBT research, it is necessary to map and trace references related to CBT so that it becomes a reference in research. To that end, using bibliometric analysis by analyzing 334 articles, the study aimed to answer the question; Who is the most influential author in the CBT study? What are the most cited references in studies on CBT? In the Scopus database, what are the most cited journals? Specifically, the study used co-citation analysis to map important references, as well as journals that have a broad influence on CBT topics. Data visualization in this study used VOSViewers as well as content analysis of several related documents. The results of the study showed that the most widely used reference in publications related to CBT is D. J. Timothy's book. The study also emphasizes that Timothy is the most popular author in the discourse on CBT. In addition, in CBT publications, the most influential journal is Tourism Management. This study has implications for researchers who want to conduct studies on CBT in determining references and determining destination journals. **Keywords:** Co-citation analysis; bibliometrics; research trends; cross-border tourism

1. INTRODUCTION

Cross-border tourism (CBT), like tourism development and international border management, is a fascinating new subject. Geographers and border experts have long studied frontiers. Similarly, numerous tourism professionals have conducted research in the field of tourism. However, academics in the field have not paid much attention because cross-border tourism is a new topic in the field of tourism and border studies.
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As a new study, the definition of CBT has not been widely explored by researchers. The discussion on CBT has two main aspects: borders in the context of international borders and tourism. International borders are defined as geographical areas facing neighboring nations that are bounded by the administrative territories of the two countries whose borders have been agreed upon (Muta'ali et al., 2018, p. 44). The World Tourism Organization (UNWTO) defines tourism as an activity of human mobility to leave where they usually live and visit another place with recreational motivation. Thus, CBT can be interpreted as activities across international borders motivated by travel motivation.

The emergence of CBT literature and studies marks the progression of CBT studies. A thorough examination of the CBT literature is required to provide a comprehensive study. Some previous studies have used co-citation, including in tourism. For instance, Okumus et al. (2021) conducted studies on food tourism. Wong et al. (2021) conducted studies on CSR in tourism, and Polat & Koseoglu (2022) conducted a study on wellness tourism. However, no studies have been carried out to identify and bring to light key and influential CBT literature.

For this reason, this research will use co-citation analysis to expand on past CBT-related research. This study intends to provide answers to three crucial CBT-related questions. First, who are the most influential authors in CBT research? The second question is, what is the most frequently referenced reference in CBT studies? And, finally, what are the most cited journals in the Scopus database?

2. METHODS

It is a bibliometric analysis that focuses on co-citation analysis. Bibliometric analysis is a tool for mapping the pattern and organization of prior research. Bibliometric analysis is fundamentally a type of statistical study (José de Oliveira et al., 2019; Liao et al., 2018; Salouw et al., 2023), and is very useful. Bibliometrics Study uses strict procedures to produce credible, high-quality information (Keathley-Herring et al., 2016). This study additionally investigates references to bibliometric analysis findings, allowing it to be classified as a literature review.

Specifically, this study used co-citation analysis which is part of bibliometric analysis. Co-citation analysis examines citations from elements, i.e., authors, journals, or articles cited simultaneously by third-party articles, appearing together in reference lists (Small, 1973). In short, co-citation analysis can quantitatively examine a particular research's evolution. In this study, the database used was Scopus. The Scopus database was chosen considering the broader scope of science fields (Martín-Martín et al., 2018) and easy access to datasets (Harzing & Alakangas, 2016). Integrating all databases in a bibliometric study is ideal but not easy because each database is unique (Pathmanandakumar et al., 2021) The data obtained from Scopus will then be entered into VOSviewer to visualize bibliometric data. VOSviewer is a computer program that can construct and display bibliometric maps (van Eck & Waltman, 2010). In addition, the Mendeley application is also used for data compilation. Mendeley is a proper virtual file cabinet application (Fink, 2014).

The study adopts seven steps of bibliometric analysis introduced by (José de Oliveira et al., 2019) that is:

1. *Determine the focus of the research area.* The field of tourism research is used in this study.
2. *Define the database.* The Scopus database was chosen considering the science field's scope and easy access.
3. *Mining bibliometric data.*

- Define and execute search criteria.

  Keywords: Cross-border tourism
  Document type: article
  Year: exclude 2022
  - Boolean, **TITLE-ABS-KEY ("Tourism" AND "cross border")**
  - Review and save the result.

Table 1 summarizes the findings of the search and review.

Table 1. Search Criteria

Included Criteria	
Database	Scopus
Publication year	Up to 2021
Document Type	Article Jurnal
Source	Scopus journal
Subject area	Social Sciences, Business, Management and Accounting, Environmental Science, Earth and Planetary Sciences, Economics, Econometrics and Finance, Arts and Humanities, Engineering, Agricultural and Biological Sciences, Psychology, Decision Sciences,
Language	English

There are differences in the number of initial search results before the criteria in Table 1 are applied. After the criteria are set and updated, the number of search results changes (see below).

Table 2. Comparison before and after application of criteria

Search Keywords	Number of results before application of criteria	Number of results after application of criteria
"tourism" and "cross border"	785	334

- Export saved result.

After the data that matches the criteria is found, then the data is saved in the form of (CSV).

4. *Import data*. After the data is selected according to the criteria, the data is then exported to the VOS Viewers application.
5. *Bibliometric analysis.*
6. *Map the result.*
7. *Conclusion.*

3. RESULTS AND DISCUSSION

Three hundred thirty-four (334) documents will be chosen based on specified parameters for co-citation analysis. Table 3 provides a summary of the search results. Furthermore, a co-citation analysis was carried out on the document obtained to answer the research question.

Analysis co-citation examines citations from elements, i.e., authors, journals, or articles cited simultaneously by third-party articles and appearing together in reference lists (Small, 1973). Co-citation analysis in this study includes co-citation references, co-citation author, and co-citation journal.

Table 3. Overview of criteria and total data analysis

Criteria	Total
Document	334
Author	739
Source	202
Country	71
Institution	620
Cited references	15852
Average citations per document	47.5

Source: The authors, 2022

Co-citation References

The co-citation references focused on references cited in the 334 Scopus documents used in the study. The analysis results show that the book written by (Timothy, 2001) is the most cited reference, with 13 citations in 334 documents related to CBT. The book is mentioned 13 times with a total link strength of 5. The second to sixth positions have the exact total citations, which is six times. In this position, the article (Blasco et al., 2014; Stoffelen et al., 2017; Stoffelen & Vanneste, 2017; Timothy, 1995; Weidenfeld, 2013) has the same number of citations but different link strengths.
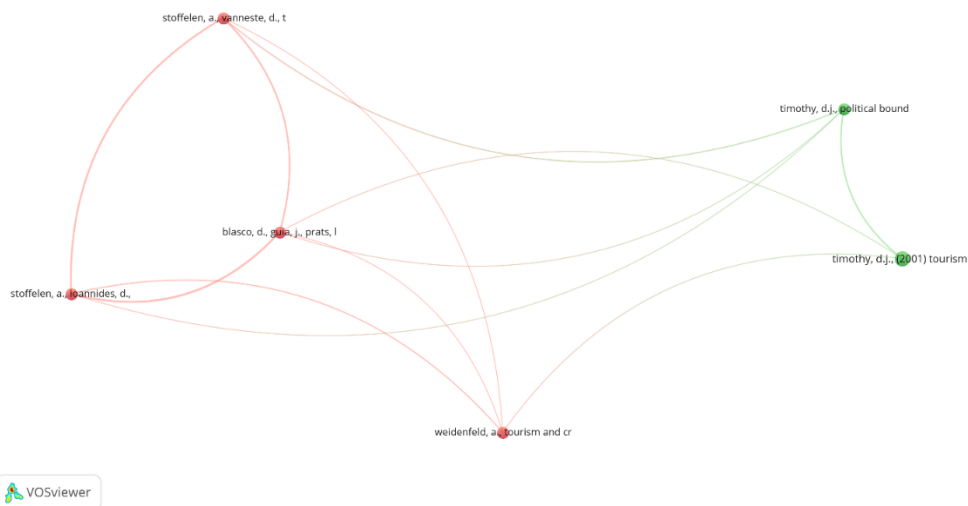

Figure 1. Visualization of co-citation references
Source: Elaboration of authors by using VOSviewers

These scientific publications have a different substance, which generally relates to CBT. The first is a work by Timothy (2001) entitled "*Tourism and Political Borders.*" Timothy highlighted the connection between borders and tourism using economic, socio-cultural, and other environmental activities. According to him, tourism is influenced by political boundaries

represented geographically by the presence of border areas. Tourism activities closely related to the mobility of people from one place to another have a strong wedge with the existence of border areas. In some instances, tourists experience restrictions to pass through border areas due to political policies, specifically those applied by a state administration. Furthermore, Timothy also highlighted the magnitude of tourism activity in border areas, with many of the world's most popular attractions located close to directly above the area.

In the second position, the most used references in CBT terminology are articles by Blasco et al. (2014) entitled *"Emergence of governance in cross-border destinations."* It described the process associated with the emergence of CBT networks while identifying the main elements driving the consolidation of shared tourism governance structures. A case study of the CBT structure in the Cerdanya Valley —the Catalan Pyrenees region, was used to determine the five main factors influencing the emergence process of CBT destinations. These include institutional similarity, bridging actors, leadership and entrepreneurial capacities, close relationships, and serendipity.

The third is an article by Stoffelen et al. (2017) entitled *"Obstacles to achieving CBT governance: A multi-scalar approach focusing on the German-Czech borderlands."* This article identifies obstacles in constructing tourism governance in border areas, both transnational and domestically. Therefore, by analyzing the border between the German-Czech countries, a region capable of combining the internal borders between the three German federal states shows the existence of multi-scalar contestation and the politics of CBT collaboration. Local tourism projects in the region are generally successful at the German-Czech transnational level and between the German states of Bavaria, Saxony, and Thuringia. The management of CBT destinations is structurally unattainable due to problems in the alignment of multi-scalar institutions and power contestation at the internal level of tourist destinations. In light of these findings, understanding the management process of tourist destinations in border areas requires an explicit multi-scalar analysis, recognition of transnational and domestic contexts, and more cross-discussion between tourism planning and cross-border governance research.

The fourth is an article by Stoffelen & Vanneste (2017) that structurally analyzes tourism's role in regional development processes in European transboundary regions. It was written in line with the other historical development by comparing the position of tourism in the regional development process in the newly developed German-Czech transboundary region and the more 'mature' German-Belgian border. The results showed that developing a local CBT agenda does not guarantee a positive regional impact across all destinations. In some cases, this agenda strengthens the asymmetrical direction of socio-economic development from the borders of the surrounding area. Conversely, the socio-spatial benefits of tourism benefits in a cross-border context depend on several process-based aspects. This includes proper cross-border institutional arrangements, multi-scalar representation of tourism stakeholders in the decision-making process, and its transverse position in regional development strategies. The informal network of intermediary institutions proved vital in maintaining the integrative tourism character in the development process of the 'under-mobilization' institutional areas between the Germany-Czech Republic and the 'over-mobilization' institutional position of Germany-Belgium.

The fifth scientific publication is by Timothy (1995), entitled "*Political Boundaries and Tourism: borders as tourist attractions.*" It discussed the nature of political boundaries in the context of tourism and the tendency of different types of international borders to attract significant numbers of tourists. It also stated that international border areas were formally

considered disturbing due to the perception of increased perceived distance. However, it assumed that border areas, in most cases, also function as tourist destinations.

The sixth publication is by Weidenfeld (2013), entitled "*Tourism and cross border regional innovation systems.*" It examines the role of tourism knowledge transfer and innovation in the context of cross-border regional innovation systems in Europe. Furthermore, it intends to determine whether the intensive movement of people, including tourists, across relatively open international borders affects knowledge transfer and the diffusion of innovations. It also identified four key dimensions associated with the role of tourism in the Cross-Border Innovation System; 1) regional, sectoral, and managerial similarities, 2) mobility, connectivity, and internationalization of knowledge, 3) historical, socio-institutional, and cultural variations, and 4) dimensions of governance.

Co-citation Author

The co-citation is used to analyze the relationship between the prominent authors, which is set to the minimum number of 20 citations, with only 49 fulfilling the threshold out of the 15,372 authors. The results illustrated (Figure 6) show that there are 6 clusters. The first (red) consists of 13 authors with 675 citations. The top 3 most-cited authors in this cluster are Timothy (258), Hall (85), and Butler (64). The second cluster (green) contains 12 cited authors with a total of 394 citations, out of which the three most cited ones are Stoffelen (54), Prokkola (49), and Vanesste (48). The third cluster (blue), with ten authors, has a total of 288 citations, and Whittaker (39), Pennings (38), and Inhorn (35) are the most cited. The yellow cluster is the fourth filled by five authors with 138 citations. Wieckowski (42), Dolsblasz 28, and Van Der Valdez (28) are the most cited. The fifth cluster (purple) has 207 citations and is populated by five authors. The last cluster (light blue) consists of 4 authors with a total of 122 citations, whereby William (44), Weidenfeld (30), and Makklonen (27) are the top-cited. In general, the three most cited authors are Timothy (258), Hall (85), and Paasi (66), with total link strengths of 3,229, 938, and 1,008.
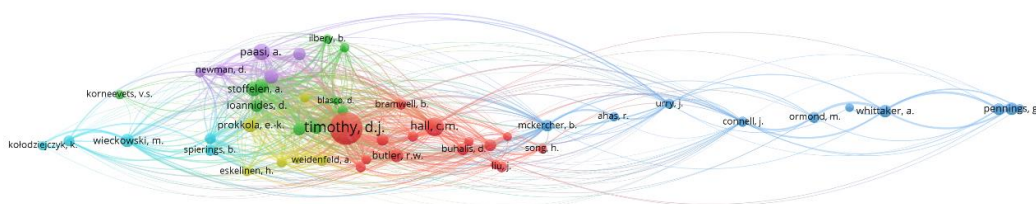

Figure 2. Visualization co-citation author
Source: Elaboration of authors by using VOSviewers

Co-citation Journal

The second co-citation analysis focuses on co-citation sources with the minimum set to 20, with 56 cited sources meeting the minimum requirements. The research results indicate that the *Tourism Management* journal is the most cited journal with 472 citations and 9788 total link strength. The second position is *Annals of Tourism Research*, with 442 citations and 8,679 link strengths. *The Journal of Travel Research* is in third place, with 227 citations and total link strength of 5,327.

Table 3. The top 10 co-citation journal

Ranking	Source	Citations	Total Link Strength
1	Tourism Management	472	9788
2	Annals of Tourism Management	442	8679
3	Journal of Travel Research	227	5327
4	Tourism Geographies	140	3664
5	Current Issues in Tourism	133	3078
6	Scandinavian Journal of Tourism Research	97	2329
7	Regional Studies	99	2271
8	International Journal of Tourism Research	77	2210
9	Journal of Sustainable Tourism	108	1847
10	European Planning Studies	81	1773

This research visualizes co-citation sources (Figure 5) in 5 clusters. The first (red) consists of 22 journals concerned with tourism geography. The second (green) contains 12 journals that focus on tourism management, while the third (light blue) comprises 11 journals that mainly focus on tourism marketing and business. In the fourth cluster (yellow), six journals generally focus on medicine, and the fifth (purple) contains five journals that focus on tourism planning.

4. CONCLUSION

This study is a bibliometric analysis conducted to explore co-citation. Based on the findings, it can be concluded that the most referenced reference in studies on CBT is books. It is also evident in the results of the co-citation author's analysis which places Timothy as the most influential expert in (Timothy, 2001) CBT studies. Furthermore, the most influential Scopus-indexed journal is Tourism Management. This study is beneficial for researchers who want to study CBT because it can find the most significant references and the most influential authors. Nevertheless, this study has limitations because it only uses the Scopus database. Future studies should use other databases such as Web of Science and Google Scholar.

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