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Tourism knowledge: its creation and dissemination by region

Abstract

This study investigated whether regional similarities or differences exist in the knowledge domain of tourism research published in the last two decades. To this end, three analyses—citation analysis, co-citation analysis, and social network analysis—were conducted on full-length articles published in *Annals of Tourism Research* (1998–2017) across four regions: North America, Europe, Asia, and Pacific. The findings of the study show that regions matter in the construction of the knowledge domain of tourism research, as seen in other disciplines. The implications of these differences and the limitations and future research are also discussed.

Keywords: knowledge domain, regions, North America, Europe, Asia, Pacific, citation analysis, co-citation analysis, social network analysis, tourism studies.

1. Introduction

In the last three decades, there has been a proliferation of theoretical perspectives and research developments in the field of tourism. Hence, for a long time, the field has experienced a struggle to ground its epistemological and ontological positions as an academic discipline in terms of both pedagogy and knowledge production and dissemination (Botterill, 2001; Coles, Hall, & Duval, 2009; Echtner & Jamal, 1997; Tribe, 1997, 2001, 2004; Tribe & Xiao, 2011). To track the epistemological progress of tourism research, researchers have identified the knowledge domain of tourism research through qualitative and quantitative reviews of articles published in leading academic journals (Benckendorff & Zehrer, 2013; Tribe & Liburd, 2016; Xiao & Smith, 2006). These studies have revealed the significant extension that has occurred in the knowledge domain of tourism research (Xiao & Smith, 2006; Yuan, Gretzel, & Tseng, 2015). However, researchers have paid very little attention to the relationship between diversity in the knowledge domain of tourism research and international differences (Benckendorff & Zehrer, 2013; Yuan et al., 2015), although this relationship may elucidate a difference in perspectives both conceptually and methodologically, which may impact epistemological partition in tourism research, education, and consultation practices, as seen in other disciplines, such as strategic management (Pilkington & Lawton, 2014), organizational analysis (Üsdiken & Pasadeos, 1995), and production and operation management (Pilkington & Liston-Heyes, 1999).

Consequently, the main purpose of this study was to delineate regional similarities and differences in the knowledge domain of tourism research as possible consequences of the reflexivity of social and political aspects in the dissemination of accepted tourism knowledge (Ren, Pritchard, & Morgan, 2010) and variations in doctoral program structures and content (Pilkington & Lawton, 2014). The findings of this study contribute to ongoing discussions on the

knowledge domain of tourism research, which have shown that the position remains unclear because the fragmentation in the knowledge domain of tourism research persists (Benckendorff & Zehrer, 2013) due to the relationship between tourism and other disciplines (Dann & Cohen, 1991; Tribe & Liburd, 2016), which may emerge as an obstacle to the progress in tourism knowledge development.

To achieve the purpose of the present study, we utilized citation and co-citation analyses, since the reliability and validity of these methods for analyzing the knowledge domain of a discipline or field have been attested by numerous studies dealing with different disciplines or fields (see Acedo & Casillas, 2005; Boyack & Klavans, 2010; Culnan, 1987; Hota, Subramanian, & Narayanamurthy, 2019; Nerur, Rasheed, & Natarajan, 2008; Pilkington & Meredith, 2009; Zhao, Zhang, & Kwon, 2018). Hence, this study addressed three key questions: First, what are the similarities and differences among regions based on the most cited articles? Second, what are the similarities and differences among regions with regard to the knowledge domain of tourism research identified via network analysis? Third, which articles have critical roles in the knowledge domain of tourism research for each region based on the degree centrality and betweenness centrality of the co-citation network generated for each region? After briefly discussing the knowledge domain of tourism research in the next section, details of the citation, co-citation methods, and network analysis are presented in the methodology section with an explanation of how the data for these methods were extracted and analyzed. Then the findings and conclusions, respectively, are presented.

2. Literature Review

2.1. Knowledge domain of tourism research

The term knowledge domain is used interchangeably with some terms, such as intellectual structure, academic foundation, body of literature, and body of knowledge, in a chosen discipline or field. Hence, knowledge domain hereby is accepted as an intellectual structure defined as "a set of salient attributes of the knowledge base that can provide an organized and holistic understanding of the chosen scientific domain" (Shafique, 2013, p. 63) including "its constituent research traditions, their disciplinary composition, topics addressed by these, and the pattern of their interrelationships" (Shafique, 2013, 63). Based on this terminology, five disciplines—namely, economics, sociology, psychology, geography, and anthropology—contributed to the tourism research in the early stages of tourism (Jafari & Ritchie, 1981).

Over time, researchers conducted some review studies to identify the knowledge domain of tourism research. For example, Jafari and Aaser (1988) identified 15 main disciplines in their review of tourism doctoral dissertations. While Swain, Brent, and Long (1998) determined the 10 top headwords by focusing on the subject index of *Annals of Tourism Research* (hereafter *Annals*) in 1973–1998, via index headword analysis, Xiao and Smith (2006) identified 13 subject areas in the knowledge domain of tourism research in articles published in *Annals* between 1973 and 2003. Ballantyne, Packer, and Axelsen (2009) and Park, Phillips, Canter, and Abbott (2011) identified 21 and 20 tourism subject areas, respectively, via content and/or citation analysis by considering a larger number of leading tourism journals than in previous studies. Lastly, Yuan et al. (2015) deconstructed the knowledge domain of tourism research by visualizing 12 categories and 41 subtopics in 2,254 articles published in 10 leading tourism journals between 2000 and 2008. These studies have demonstrated the expansion of the knowledge domain of tourism

research, but they have not examined whether similarities or differences exist in the knowledge domain of tourism research among geographical regions.

2.2. Regional differences in the knowledge domain of tourism research

Studies with a regional focus and/or investigating regional differences regarding the knowledge domain of tourism research are very limited. Several studies have examined progress in China tourism literature via content analysis by focusing on the themes addressed, methods employed, and contributors or authorship at the individual, institutional, and country levels (Law, Wu, & Liu, 2014; Sun, Wei, & Zhang, 2017; Wu, Song, & Deng, 2001; Wu & Wall, 2016; Yang & Brunt, 2011; Zhang, 2002, 2015; Zhang & Lu, 2004; Zhang, Lan, Qi, & Wu, 2017; Zhu & Liu, 2004). Zhang et al. (2017) highlighted 14 topics—tourism theory and research, tourism geography, tourism scheme and planning, tourism public management and industry management, tourism education, tourism road and transportation, tourism environment, tourism psychology, tourism marketing, tourism informatization and its application, tourism law, tourism humanities, tourism economics, and tourism development of destination and region—in three Chinese databases from 2003 and 2012. Sun et al. (2017) compared the research themes of Chinese contributions from four regions—namely, Mainland China, Hong Kong, Macau, and Taiwan. They found that while the articles on Mainland China dealt with tourism development, satisfaction, destination image, rural tourism, and tourism supply chain, the articles on Taiwan addressed issues related to service quality, international tourist hotels, destination image, satisfaction, and travel agencies. Furthermore, the articles on Hong Kong and Macau focused on tourism demand, motivation, internet, satisfaction, and service quality. Hence, the articles on Mainland China focused more on macro-level tourism activities, whereas those on the other three regions investigated tourism issues more in terms of micro-level activities of tourism-related

organizations. Hence, based on the themes and content of tourism research, there are some important differences among these four regions.

Benckendorff (2009) studied the knowledge domain of Australian and New Zealand tourism research by conducting a co-citation analysis and uncovered that it was composed of three clusters: (1) geography, development, and development impacts; (2) tourist gaze and authenticity; and (3) tourist behavior. Based on this analysis, he underlined a need for regional studies, since researchers from different regions may have different research emphases. However, based on their bibliographic study considering 10 leading tourism journals, Yuan et al. (2015) professed that most research topics are not region/country specific. Notwithstanding, the similarities and differences in the knowledge domain of tourism research for regions are blurred for both academicians and practitioners. Consequently, to acquire a better understanding of the epistemological position of tourism research, more studies elucidating regional similarities and differences in the knowledge domain of tourism research are needed.

3. Methodology

The present study employed citation analysis and co-citation analysis via social network analysis as part of a bibliometric analysis, which entails a knowledge domain analysis, visualization, and interpretation of these practices objectively and unobtrusively using bibliometric items of published studies (Cobo, López-Herrera, Herrera-Viedma, & Herrera, 2011; Garfield, 1979; Schmoch, Beckert, & Schaper-Rinkel, 2019). Bibliometric analysis can exert a high impact on both academia and industry because it gives these stakeholders more options for (re)designing their next movement to accelerate progress in chosen disciplines or fields (Zupic & Čater, 2015). It has several approaches (see Koseoglu, Rahimi, Okumus, & Liu, 2016). The most popular approach is citation and/or co-citation analysis, which has been used to

identify the knowledge domain in many (sub)disciplines (González-Valiente, Santos, Arencibia-Jorge, Noyons, & Costas, 2019; Hota et al., 2019).

Citation analysis is mainly related to counting the frequencies of cited documents in publications selected by following some pre-defined criteria (Law, Ye, Chen, & Leung, 2009). This frequency analysis determines influential publications in the given subject. Hence, this helps researchers identify what disciplines/authors and journals contribute to the given subject and how the given subject has grown and evolved based on subsubjects and journal genres (Zupic & Čater, 2015).

Co-citation analysis is defined as an analysis of the link between any two articles that are jointly referenced in other articles (Tang, Wang, Chang, Chen, Lo, & Tsai, 2016). When two articles are often cited together, the relationship between them will be stronger. Hence, they reflect a subdiscipline or subtopic of the same research discipline or field (Hota et al., 2019). This helps researchers elucidate the knowledge domain of given disciplines by grouping topics and/or authors via mapping or visualization methods (Nerur et al., 2008; Pilkington & Meredith, 2009). Moreover, researchers benefit from the maps or visualizations because they help them address the interrelation among the groups over time (García-Lillo, Claver-Cortés, Marco-Lajara, & Úbeda-García, 2019).

Social network analysis allows for generating networks from the links among cited articles in a given discipline (Khan, Sarstedt, Shiau, Hair, Ringle, & Fritze, 2019). Hence, researchers have used social network analysis to complement co-citation analysis (Hou, Yang, & Chen, 2018; Shen, Wang, Dai, & Zhang, 2019). The main role of social network analysis is to identify critical actors in networks and highlight the strength of these actors' relationships with other actors in the network (Wasserman & Faust, 1994). Two main network centrality

measures—degree and betweenness—have been used to determine actors' positions in the network. While degree indicates how many collaborators an actor has in the network, betweenness shows an actor's capacity to connect with other actors in the network (Hota et al., 2016). Higher scores for both measurements mean that those actors have critical positions in the network that enhance the network over time (Koseoglu, 2016).

3.1. Journal selection

Annals was selected to evaluate regional similarities and differences in the knowledge domain in tourism research for three reasons. First, *Annals* is among the most highly regarded journals in tourism studies (Gursoy & Sandstrom, 2016). Second, unlike many other tourism journals, *Annals* does not focus on any specific field or region. In other words, it has an explicit scope of publishing social science research. Third, it has had a consecutively high impact factor over the last two decades, which is the time frame for this analysis.

3.2. Extracting articles and exporting related data

For this analysis, 1,393 full-length articles published in *Annals* from January 1998 to December 2017 were extracted. The articles were first categorized into countries according to the affiliation of the lead author by considering three previous studies (Pilkington & Lawton, 2014; Pilkington & Liston-Heyes, 1999; Üsdiken & Pasadeos, 1995) and subsequently grouped under larger world regions (Rosenberg, 2016). The four major world regions of North America (336), Europe (546), Asia (161), and Pacific (i.e., Australia and Oceania; 258) accounted for 93% (1,301) of the 1,393 articles. Due to the small number, the 92 articles by lead authors affiliated with other regions were excluded from the analysis. The distribution of articles by year and region is presented in Figure 1. These numbers clearly reflect that in the last eight years, Europe has seen a significant difference in the amount of tourism research.

[Insert Figure 1 here]

The data for the study were obtained from the reference lists of the selected articles. In total, 67,821 references were retrieved from the Scopus database to use in three analyses—citation, co-citation, and network analyses. From this dataset, books were excluded because books include richer contents and more in-depth treatments than journal articles (Tseng, Ma, & Chou, 2010).

3.3. Analysis and visualization

The analysis procedure first entailed cleaning the data. For this, frequency analyses were performed to eliminate discrepancies or mismatches due to spelling errors in the titles of referenced works. In the co-citation analysis, we used the titles of references due to the lack of identification of the research field from the authors' names (Acedo et al., 2006). For the citation analysis, we used SPSS. Then, to prepare the data for the co-citation and network analyses, we used the BibExcel package program, which allows for automatically considering co-occurrence among citations in the analysis. Regional networks generated from the co-citation analysis were visualized using VOSviewer, which enables a display of the clustering of source knowledge domains, and the Gephi program was used to calculate network centralities.

4. Findings

For the sake of clarity in the following presentations, the term *article(s)* refers to the 1,301 published full-length papers in *Annals* (1998–2017), whereas the term *reference(s)* refers to the references listed at the end of the 1,301 articles. Additionally, due to the large number of references, cutoff points were used in each analysis for each region to select the most influential references, as suggested by Leung, Sun and Bai (2017). A code was assigned to each influential

reference to facilitate the analysis and interpret the visualization properly. The list of codes of influential references is presented in the Appendix (online supplement).

4.1. Citation analysis for each region

After cleaning the data, we conducted a frequency analysis for each region to explore the most influential articles in the reference lists of the selected articles. Interesting regional similarities and differences are shown in Table 1. For example, 77, which is Butler's (1980) seminal work on the tourism lifecycle, is the most cited reference in North America and Europe and is the second most cited in Pacific. However, it is substantially less popular in Asia. Reference 4, by Cohen (1979), on the phenomenology of tourist experiences is popular across the globe (most cited in Pacific, second most cited in North America and Asia, and third most cited in Asia). Asia distinguishes itself on the topic of authenticity as well. That is, references 9 and 58, which are, respectively, Cohen's (1988) and Wang's (1999) seminal works on authenticity, appear on the top three most cited list for all regions but Asia. In Asia, of the three most cited references, the first (reference 28 by Fornell & Larcker, 1981) and the third (70 by Anderson & Gerbing, 1988) are well-known papers on structural equation modelling (SEM). This clearly shows that scholars from Asia give a high preference to theory testing and extension.

[Insert Table 1 here]

4.2. Co-citation analysis for each region

To conduct the co-citation analyses, the smart local moving algorithm was used as the clustering method (Waltman & Van Eck, 2013). In Figures 2–5, the upper part of the VOSviewer diagram (A) visualizes the source knowledge networks resulting from the co-citation analysis for each region. Notably, the size of the circle shows the normalized number of citations of articles. The thickness of the lines shows the strength of the co-citation ties. The link and proximity

between two references present their co-citation relationship. The color of the circle demonstrates the cluster with which a reference is associated (Leung et al., 2017). Each circle was labeled by the code given by the researchers for a reference entry. The lower part of the VOSviewer diagram (B) displays the conceptual structure of the cited sources through "heat maps" in which "warmer colors and bolded fonts are used to emphasize concepts [references] that are frequently used, while words [references] that are used only sporadically are shown in colder colors and subdued smaller fonts" (Zupic & Čater, 2015, p. 447). Additionally, Table 2 summarizes the knowledge domain of tourism research in *Annals* for each region.

[Insert Table 2 here]

4.2.1 Knowledge domain: North America

North America includes 336 articles, in which 113 references cited at least six times in this corpus of published text were submitted to co-citation analysis. The intellectual structure of North American scholarship is presented in Figure 2. Four distinct clusters are clearly visible on the map. In the center, two studies on destination lifecycle (Butler, 1980; Getz, 1992) formulate a cluster (in yellow). These studies clearly differentiate themselves from other source knowledge domains, however, taking this cluster as a distinct domain could be questionable due to its small size.

[Insert Figure 2 here]

The highest concentrations, around authenticity and tourist experience (red cluster) and around residents' attitudes and tourism impact (green cluster), are visible on the heat map, indicating their influence on tourism scholarship in North America. The influence of the consumer behavior domain (blue cluster) is relatively small. Articles in this domain focus on marketing and image, and the majority of references are sources published before 2000.

4.2.2 Knowledge domain: Europe

Europe includes 546 articles, in which 114 references cited at least eight times were subjected to co-citation analysis. Five clusters were identified in the intellectual structure of tourism for the European region (Figure 3). The green cluster representing studies on lifecycle is relatively dominant. Different from the North American scenario, Butler's seminal work does not appear isolated as the node is surrounded by topics such as destination lifecycle (Haywood, 1986; Priestley & Mundet, 1998), tourism geography (Britton, 1991), and power and policy in tourism (Bramwell & Meyer, 2007; Dredge, 2006). Overall, the interconnections between nodes are not high, indicating that the articles in this cluster belong to different topics. Nonetheless, compared to North America, lifecycle studies have a greater influence on European research.

[Insert Figure 3 here]

Visually notable are the "paradigm in tourism" (red) and "consumer behavior" (blue) clusters, which appeared to be the most influential source knowledge domains in European tourism research. Studies on the backpacker and tourist experiences formulate one cluster (yellow), whereas authenticity studies formulate another distinct cluster (purple). There is high concentration on reference 44, Edensor's (2001) work on performance. Its mid-way location between "purple" and "red" implies that "authenticity" and "paradigm in tourism" frequently relate to or adopt the performance approach, indicating the emergence of a source knowledge domain.

4.2.3 Knowledge domain: Asia

Asia includes 161 articles, in which 147 references cited at least three times were included in the co-citation analysis. Six clusters were identified as the intellectual structure of tourism studies for this region (Figure 4). Its source knowledge domains are substantially

different from those in North America and Europe. Three knowledge domains are related to consumer behavior and marketing. On the left of the intellectual map, the dark blue cluster is dominated by studies on satisfaction and loyalty. While no single paper stands out as a theoretical source or basis of this domain, studies conducted in both Western (Jang & Feng, 2007) and Asian countries (Lee, Yoon, & Lee, 2007) are visible among the nodes. The high concentration around the cluster speaks to its influence in the region.

[Insert Figure 4 here]

The cluster in green consists of references to information search and consumer behavior models. Similar to previous source knowledge domains, these nodes are highly interconnected. Relatively higher concentration is observed on the heat map around references 28 (Anderson & Gerbing, 1988) and 70 (Fornell & Larcker, 1981). Both sources have a methodological focus featuring SEM. While SEM is a frequently adopted research technique, it can be seen that this tool has been excessively used in this knowledge domain. The third, and less influential, domain focuses on marketing along with destination image (yellow cluster).

Interestingly, backpacking experience and authenticity are connected in one cluster (purple). Clearly separated from other domains, the influence of this cluster on tourism scholarship is high. The smallest cluster (light blue) connects nodes that are scattered around different source knowledge domains. No specific feature or orientation of this cluster can be distinguished. To a large extent, concentration occurs around 398, which is Palmer's (1994) work on how tourism perpetuates the ideology of colonialism and prevents the local population from defining their own national identity.

The "classics" domain with mixed topics (red cluster in the bottom right of the map) covers a wide area. Relatively higher concentrations on two sections/subjects are notable. The

first concentrations around 77 and 382 are on destination lifecycle (Butler, 1980) and the geographical contribution of tourism research (Hall & Page, 2009), respectively. On the lower side of the cluster, economics-oriented papers are in the center of the heat map focusing on demand elasticity (Song, Kim, & Yang, 2010) and the economic impact of tourism (Ramesh, 2002; Seetanah, 2011).

4.2.4 Knowledge domain: Pacific

The Pacific region is represented by 258 articles in the sample. From their reference lists, 131 sources were cited at least four times and were used for the co-citation analysis. The intellectual structure of tourism studies for the Pacific is the most diverse of the four regions, in which eight different clusters were identified (Figure 5).

Unique to this region is the volunteer tourism domain (grey cluster). Many of the papers formulating the theoretical basis of this knowledge domain (Conran, 2011; Zahra & McIntosh, 2007) were published between 2005 and 2011, indicating the relative recency of the formation of this domain. Authenticity has two distinct knowledge domains in the Pacific region (light and dark blue clusters). The first is similar to other regions and covers topics such as object authenticity and existential authenticity. The latter has concentrations around commoditization and marketing (Cohen, 1988; Silver, 1993). Mixed topics with an anthropological focus are connected in the green cluster. Some of the topics covered in this domain are related to emotions (Tucker, 2009), power (Britton, 1982), netnography (Kozinets, 1997), and authenticity (Lau, 2010; Wang, 1999).

[Insert Figure 5 here]

Backpacker studies (with a focus on experience) and the performance approach are connected in the yellow cluster. Two concentration points occur around Cohen's (1979) and

Edensor's (2000, 2001) works, respectively, on the backpacker experience and performance. Noy's (2008) performance approach to visitor books is a relatively new addition to this domain.

Other domains, which are not unique to this region, are paradigm in tourism (orange cluster), residents' attitudes and tourism impact (purple cluster), and consumer behavior (red cluster). Compared to studies in Europe, the paradigm domain is less influential. Similarly, compared to North America, residents' attitudes and impact studies are less influential. The consumer behavior domain is relatively different in this region in that it covers a wider area with more and varied topics. For example, in addition to motivation and decision making (Crompton, 1979; Dann, 1981), lifecycle (Butler, 1980) and economic demand models (Lim, 1997) also contribute to the theoretical structure of this source knowledge domain.

4.3. Social network analysis for each region

To identify the references' positions in the co-citation network of regions, we calculated the scores of two dominant network attributes—degree centrality and betweenness centrality—for each region using Gephi.

4.3.1 Degree centrality

Table 3 lists the degree centrality scores of references for each region. The cutoff scores of degree centrality were 45 for North America, 38 for Europe, 45 for Asia, and 32 for Pacific. Papers with the highest degree centrality reveal interesting similarities and differences across regions. The top three references with the highest degree centrality can be discussed to touch on these observations. In North America, two references related to resident attitude—namely, 55 (Perdue, Long, & Allen, 1990) and 53 (Liu & Var, 1986)—have the first and third highest degree centrality scores, respectively. Fornell and Larcker's (1981) aforementioned paper on SEM has the second highest score. Note that degree centrality refers to the number of direct connections

with other references. In this regard, the results imply that the aforementioned topic and method are the closest to other tourism studies in North America.

In Europe, however, reference 58, where Wang (1999) revisited the concept of authenticity, has the highest degree centrality. The author criticized authenticity in the tourism literature for mainly focusing on object-related authenticity, whereas the focus should turn to activity-related authenticity, or as authors put existential authenticity. Evidently, Wang's existential authenticity has the highest direct connections with other topics in European tourism scholarship. Butler's (1980) tourist area lifecycle (reference 77) is the second. As it has been used in diverse settings and contexts, its high direct relationship with other references is not surprising. Reference 90, by Uriely (2005), on conceptual developments of tourist experience studies has the third highest degree centrality score in Europe.

[Insert Table 3 here]

The top three references in Asia are 28 (Fornell & Larcker, 1981), 8 (Um & Crompton, 1990), and 3 (Churchill, 1979), respectively. Evidently, Fornell and Larcker's (1981) aforementioned paper on SEM has the most direct connections with other references, illustrating that the method prevails in this regions across various topics. Um and Crompton (1990) studied the determinants of destination choice, revealing the wider applicability of this topic. Finally, Churchill (1979), in a way, provided a guideline for developing better measurement constructs for marketing studies. This reemphasizes the prevalence of (post)positivism in Asia and underlines the dominance of marketing-related studies.

In the Pacific region, Cohen's works on authenticity and commoditization (Cohen, 1988 [9]) and the phenomenology of tourism experiences (Cohen, 1979 [4]) have the first and second highest degree centrality scores, respectively. This indicates that compared to Europe, where

existential authenticity prevails, more traditional object-related authenticity is dominant in this region. Reference 1 by Woodside and Lysonski (1989), presenting a general model of destination choice, has the third highest degree centrality score.

4.3.2 Betweenness centrality

Equally interesting observations can be made regarding references with the highest betweenness centrality scores. Table 4 outlines references with the highest 25 betweenness centrality scores for each region. References with high betweenness centrality can also be referred to as bridges through which knowledge passes. In North America, Cohen's (1979) study on the phenomenology of tourist experiences and Wang's (1999) study on existential authenticity have the first and second highest betweenness centrality scores, respectively. Interestingly, a study on power discussions in tourism by Cheong and Miller (2000) is the third most important knowledge bridge in North America. However, this should not be surprising because, as the authors noted, power is everywhere in tourism, although frequently in an indirect way.

[Insert Table 4 here]

Wang's (1999) proposal on existential authenticity seems to be the most important knowledge bridge in Europe, judging by its highest betweenness centrality score. References 296 (Beerli & Martin, 2004) and 90 (Uriely, 2005), respectively, have the second and third highest betweenness scores in the region. Beerli and Martin (2004) investigated the factors that influence destination image, whereas Uriely (2005) focused on tourist experiences.

In Asia, knowledge bridges are also substantially different from the rest of the world. The three highest scores belong to references 277 (Yoon & Uysal, 2005), 8 (Um & Crompton, 1990), and 258 (Markwick, 2001). Yoon and Uysal (277) investigated the effects of push and pull motivations on satisfaction with, and loyalty to, a destination. Um and Crompton (1990) also

reported on destination choices, revealing that this topic is an important disseminator of tourism knowledge to wider contexts in Asia. Markwick (2001) studied Malta as a destination. The authors investigated the usage of postcards as a way of portraying authenticity and the exoticism of destinations.

Similar to Europe, seminal work on existential authenticity by Wang (1999) has the highest betweenness centrality score in the Pacific region. It is followed by Cohen's (1979) aforementioned work on the phenomenology of tourist experiences. Reference 322, in which McCabe and Johnson (2013) brought the happiness factor to tourism, has the highest betweenness centrality score. In particular, the authors developed measures for the concept of social wellbeing and illustrated that tourism affects the former. Evidently, together with existential authenticity and tourist experiences, the concept of social wellbeing also has the role of a bridge and is an important disseminator of knowledge in Pacific tourism scholarship.

5. Conclusions

This study constituted an attempt to elucidate whether similarities and differences exist among regions in the knowledge domain of tourism research in *Annals*. To this end, three analyses were conducted. In the first analysis, the influential papers were identified via citation analysis. Subsequently, co-citation analysis was conducted to reveal the citation subject clustering and visualization of the clusters for each region. Finally, network analysis was employed for each region to calculate degree centrality and betweenness centrality scores, which address the papers' positions in the knowledge domain of tourism research. As this was the first study to identify regional similarities and differences on the knowledge domain of tourism research, it contributes to discussions on the epistemological position of tourism research.

Regarding the co-citation analyses of four regions, citation subject clusters displayed variations. In North America, for example, the co-citation knowledge domains were subject clusters around authenticity and tourist experiences, residents' attitudes and tourism impacts, marketing and consumer behavior, and destination image. In Europe, citation subjects were clustered around paradigms for tourism studies in addition to other source knowledge domains, such as destination lifecycle, tourism geography, policy and power, and slightly mildly consumer behavior. Arguably, this could, in a way, account for the fact that critical tourism studies as an emerging paradigm has its origin and most of its conferences and advocates in this region. In Asia, citation subjects were clustered around marketing and consumer behavior, satisfaction and loyalty, methodology, and the classic literature, whereas in the Pacific region, the knowledge domain was the most diverse among all regions in terms of its citation subject clustering. This shows that the knowledge domain of tourism research by region is diverse or fragmented. This may also be seen in citation and network analyses. Therefore, as seen in previous studies (Pilkington & Lawton, 2014; Pilkington & Liston-Heyes, 1999; Üsdiken & Pasadeos, 1995), the present study revealed that region may matter in the knowledge domain of the field. Several reasons, such as differences in the structure and content of doctoral programs, interests and development foci of funding institutions, and research assessment exercises of universities across the globe (Pierre, 2009; Pilkington & Lawton, 2014) may shape the structure of knowledge domains.

5.1 Limitations and future research

This study had a few limitations. First, the timeframe of the data analysis was limited to 20 years. Second, data were obtained from only one journal. Future studies may include more tourism journals. Third, the data were confined to academic journal articles from reference lists

of selected articles in *Annals*. Future studies may consider books, dissertations, and conference proceedings for a comprehensive study. Fourth, we used cutoff points in the three analyses. These points may have affected the interpretation of the results. Lastly, bias may have emerged in the interpretation of clusters generated in the co-citation analysis.

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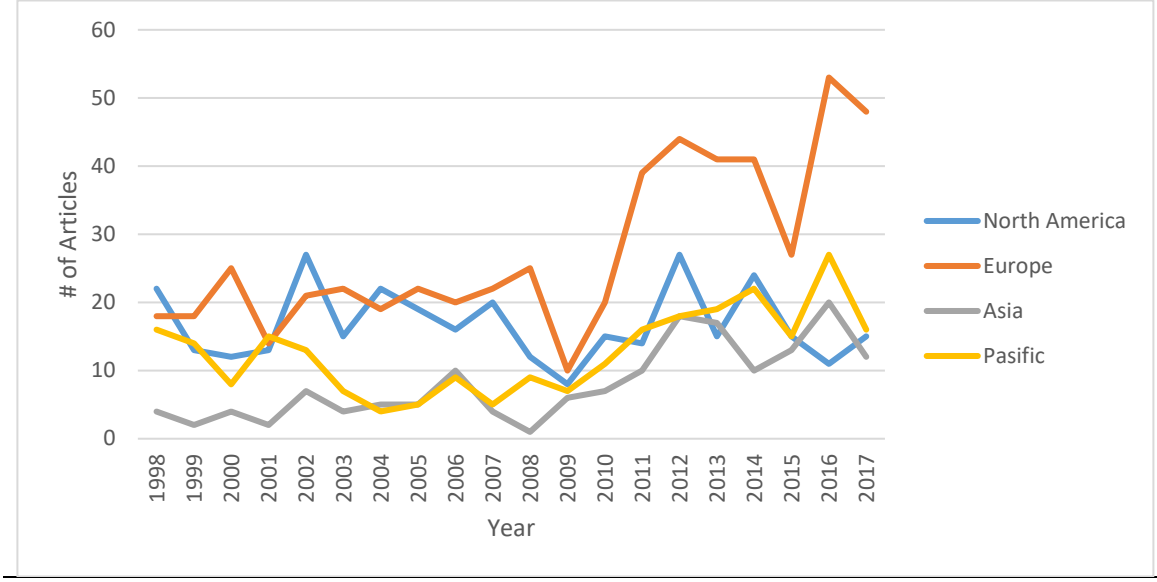
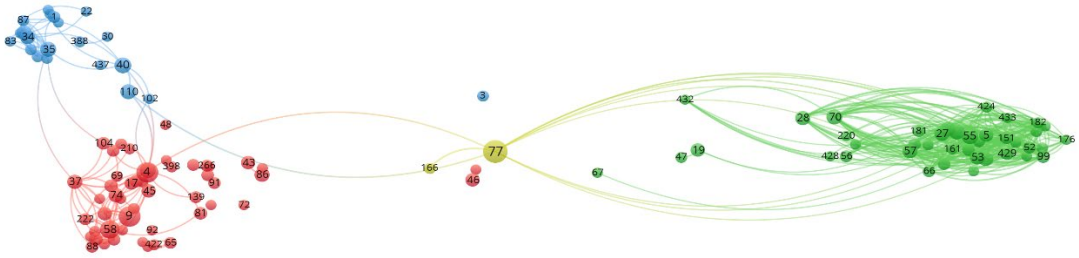


Figure 1. Distribution of the articles by year and region

A



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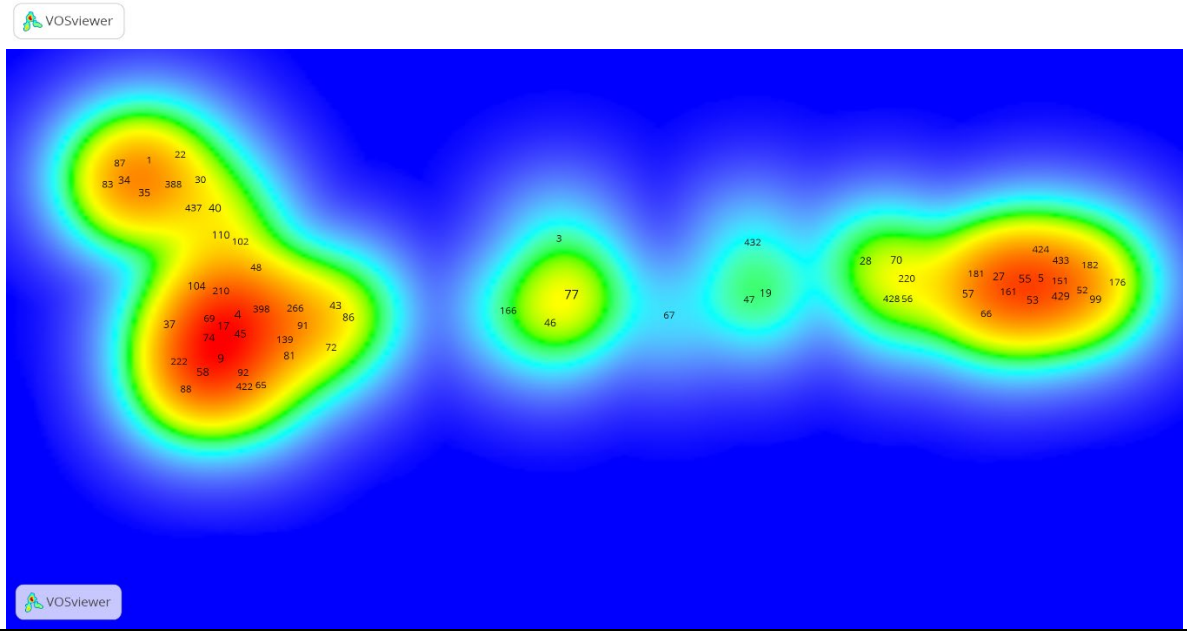


Figure 2. Intellectual connections: North America

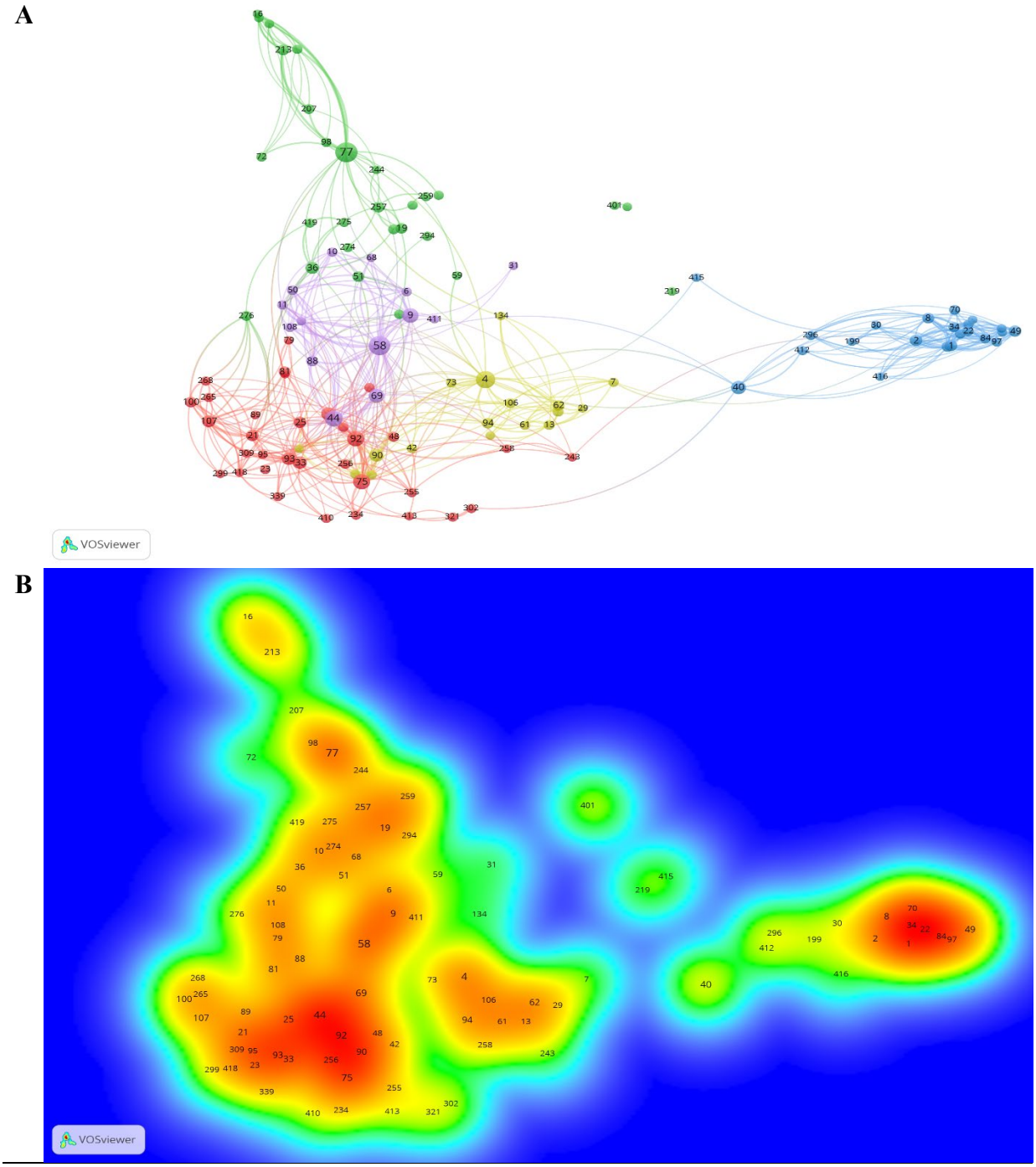
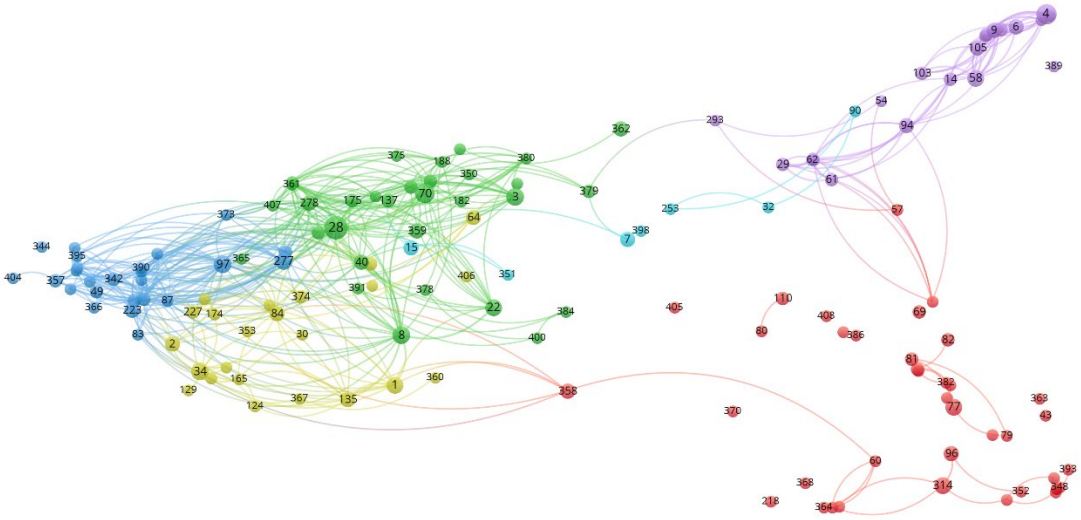


Figure 3. Intellectual connections: Europe

A



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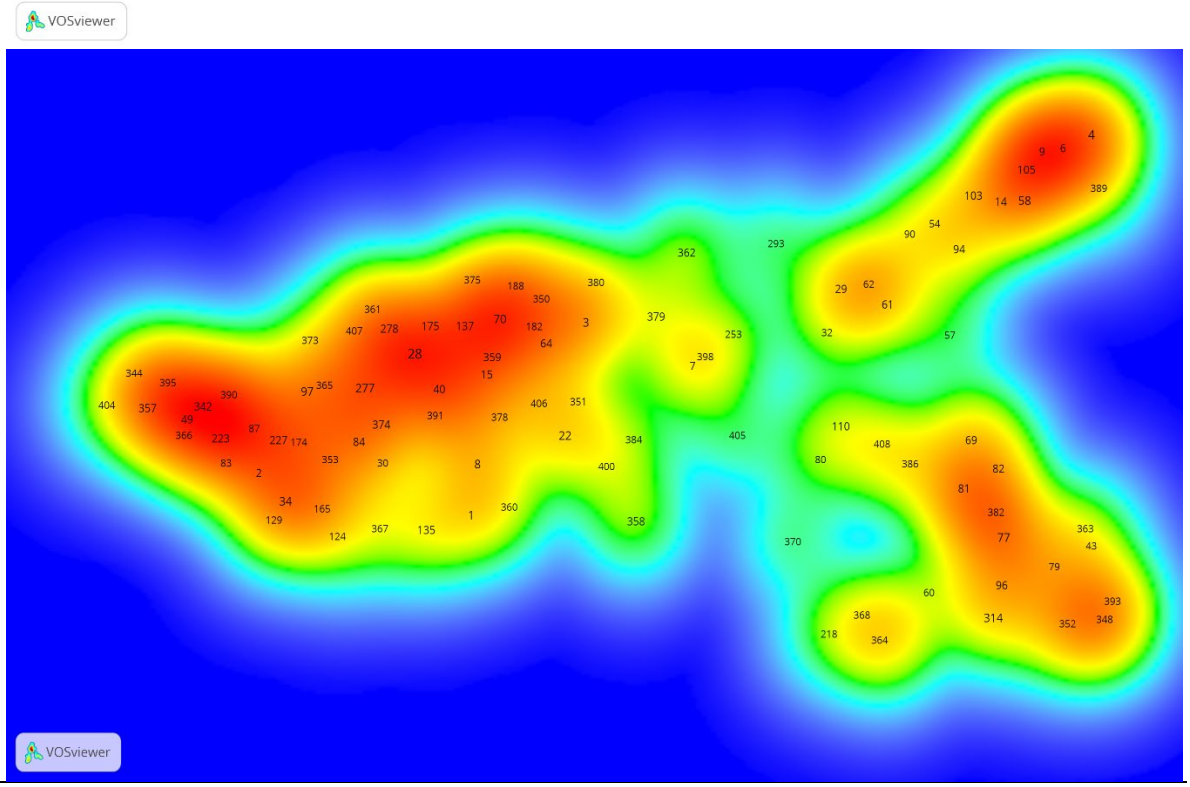
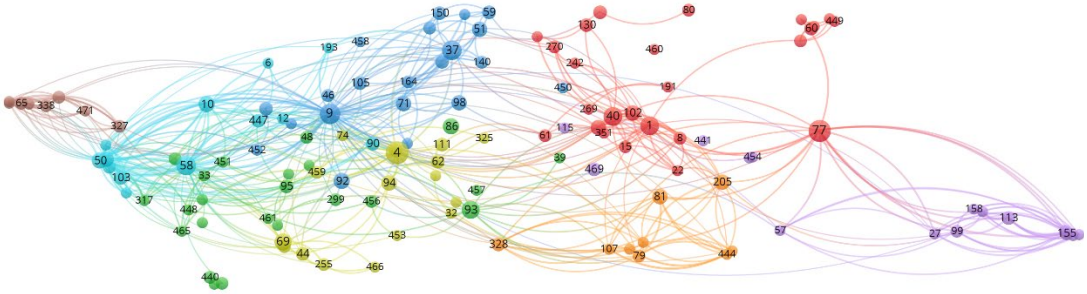


Figure 4. Intellectual connections: Asia

A



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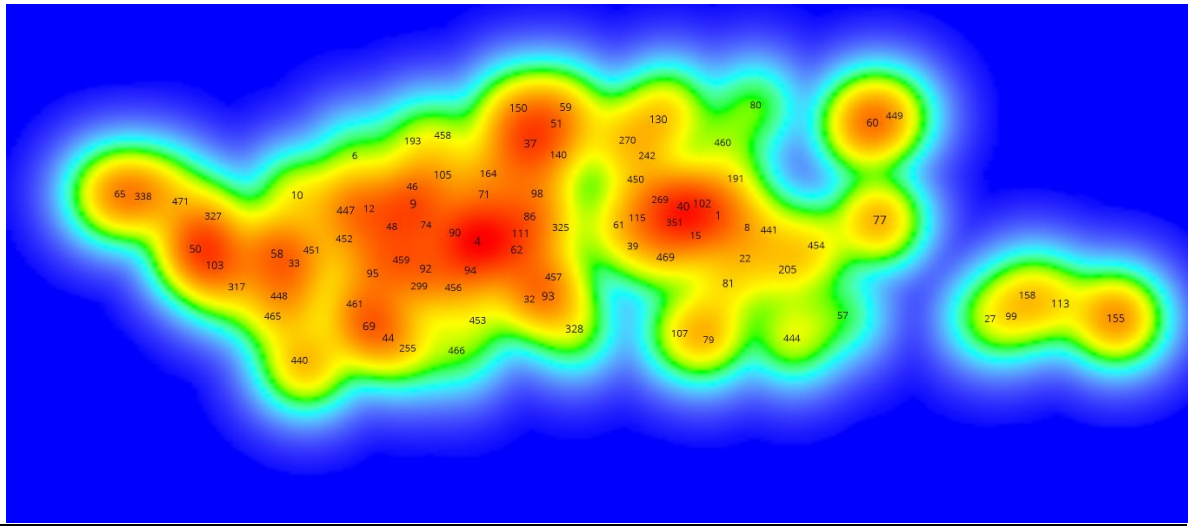

Figure 5. Intellectual connections: Pacific

Table 1. Most cited articles by region

	North America		Europe		Asia		Pacific	
Rank	Article Code	# of Citation	Article Code	# of Citation	Article Code	# of Citation	Article Code	# of Citation
1	77	30	77	42	28	12	4	16
2	4	24	58	40	4	9	77	15
3	9	23	4	32	70	8	9	13
4	58	19	44	27	3	7	37	12
5	40	14	75	24	8	7	58	12
6	55	14	9	23	34	7	40	11
7	35	13	69	20	97	7	1	11
8	54	13	40	19	1	6	93	10
9	70	13	90	18	58	6	69	9
10	78	13	93	18	77	6	10	8
11	110	13	33	17	277	6	50	8
12	27	12	46	17	314	6	86	8
13	37	12	107	16	2	5	92	8
14	74	12	36	15	6	5	51	7
15	20	11	2	14	7	5	71	7
16	28	11	21	14	9	5	81	7
17	34	11	25	14	15	5	94	7
18	38	11	49	14	40	5	98	7
19	53	11	81	13	64	5	102	7
20	57	11	88	13	84	5	108	7
21	84	11	94	13	94	5	110	7
22	86	11	257	13	96	5	205	7
23	5	10	8	12	105	5		
24	6	10	19	12	135	5		
25	19	10	26	12	223	5		
26	43	10	51	12	278	5		
27	45	10	62	12	358	5		
28	46	10	100	12	359	5		
29			213	12	362	5		
30								

Table 2. Source knowledge domain by world region

Region - Number of clusters	Identified Knowledge Domains
North America - 4	Destination Life Cycle
	Authenticity & Experience
	Resident Attitudes and Impact
	Consumer Behavior
Europe (5)	Green: Destination Life Cycle
	Yellow: Backpacker & Experience
	Purple: Authenticity
	Red: Tourism (In?)Discipline
	Blue: Consumer Behavior
Asia (6)	Dark Blue: Consumer Behavior (Satisfaction and Loyalty)
	Green: Consumer Behavior (Information Search and Behavior)
	Yellow: Consumer Behavior (Destination Image)
	Purple: Backpacker; Experience and Authenticity
	Light Blue: Colonialism
	Red: Classics
Pacific (8)	Grey: Volunteer Tourism
	Light Blue: Authenticity (Traditional)
	Dark Blue: Authenticity (Commoditization and Marketing)
	Orange: Tourism (In?)Discipline
	Purple: Resident Attitudes and Impact
	Red: Consumer Behavior
	Yellow: Backpacker (Experience) and Performance Approach

Table 3. References with the highest degree centrality scores by region

	America		Europe		Asia		Pacific	
Rank	Reference Code	Degree	Reference Code	Degree	Reference Code	Degree	Reference Code	Degree
1	55	63	58	87	28	87	9	81
2	28	61	77	64	8	79	4	70
3	53	58	90	61	3	76	1	57
4	77	58	4	60	97	70	58	55
5	151	58	75	58	278	69	93	53
6	70	57	44	57	394	65	94	48
7	4	56	46	55	184	63	77	46
8	57	54	25	50	277	62	37	46
9	425	54	69	49	358	58	110	46
10	5	52	107	47	354	57	40	45
11	54	51	88	47	84	57	10	45
12	38	51	93	46	223	56	50	44
13	66	51	9	45	373	56	108	42
14	27	50	11	45	135	54	90	42
15	58	50	33	44	1	53	328	41
16	99	50	21	43	342	53	8	40
17	63	50	36	43	361	52	205	40
18	251	50	94	43	345	52	102	39
19	429	49	100	42	381	51	447	36
20	434	49	81	42	347	49	98	36
21	160	49	40	40	87	49	106	36
22	433	48	2	39	2	49	284	35
23	421	48	296	39	390	47	57	35
24	35	47	106	38	385	46	95	35
25	52	46	256	38	371	46	81	34
26	20	45	276	38	40	46	322	32
27	182	45			204	45		
28	430	45			407	45		
29	149	45						

Table 4. References with the highest betweenness centrality scores by region

	America		Europe		Asia		Pacific	
Rank	Reference Code	Betweeness	Reference Code	Betweeness	Reference Code	Betweeness	Reference Code	Betweeness
1	4	1341.0	58	2276.2	277	2049.1	58	2080.8
2	58	927.5	296	666.9	8	1339.6	4	1292.1
3	46	832.9	90	600.0	358	1213.2	322	1201.4
4	37	700.5	88	565.7	408	1057.4	93	1030.0
5	66	635.7	294	418.6	97	1035.6	37	902.2
6	9	627.9	8	404.1	28	1031.3	1	858.1
7	77	594.7	25	390.7	362	997.6	205	787.4
8	28	534.9	75	361.6	184	954.1	81	744.0
9	151	510.8	417	345.0	1	850.2	10	720.0
10	423	501.0	93	342.1	349	848.9	77	670.7
11	240	427.5	77	340.2	64	833.8	110	661.3
12	88	410.1	81	332.1	105	809.8	90	644.7
13	166	396.7	36	321.8	15	767.0	328	596.7
14	110	395.2	106	287.7	3	753.1	98	565.1
15	40	385.8	271	260.5	350	673.9	136	527.5
16	437	367.5	2	241.3	70	668.3	447	516.9
17	35	361.1	244	240.4	96	645.7	9	503.3
18	266	347.9	107	230.6	135	570.0	53	496.2
19	78	328.3	69	230.5	381	566.8	86	495.8
20	53	316.0	415	229.2	402	555.4	108	469.9
21	67	312.4	35	224.2	60	537.0	94	430.1
22	127	295.2	416	207.2	278	520.2	327	390.3
23	55	295.0	6	207.0	394	495.1	95	388.3
24	424	294.9	1	202.2	355	493.1	465	387.5
25	45	286.7	44	199.4	77	481.0	463	349.2