Conceptual structure of lodging-context studies: 1990–2016

Abstract

The purpose of this paper is to analyze the conceptual structure of lodging-context research. In this respect, 2632 articles published between 1990 and 2016 were analyzed utilizing network analyses. We find that the knowledge domain of lodging has been expanding, with greater focus on the business and economic activities of hotels. As the network density is low, lodging as a field is at a relatively early growth level and it is open for multidisciplinary collaborations. Papers related to strategy, marketing, and human resource management are relatively mature and well developed. However, some areas such as resource-based view, and cruise business still remain undeveloped and immature. Moreover, as one of the first studies in this field, this work provides an inclusive evaluation of the results, limitations, and suggestions for future research.

Keywords: lodging, co-word analysis, hotel industry, social network analysis.

Introduction

The term 'lodging' is defined as temporary accommodation (Roberts & Shea, 2017). In this regard, we consider types of lodging establishments such as hotel, motel, cruise, resort, lodges, bed and breakfasts, timeshare, and Airbnb (Birinci, Berezina, & Cobanoglu, 2018; Cheng & Chen, 2018; Guttentag, 2015; Stutts & Wortman, 2006) as temporary accommodations. The lodging industry plays a crucial role in the daily life of people, particularly for travelers to stay in a chosen destination (Bogicevic, Bujisic, Cobanoglu, & Feinstein, 2018; Lee & Kim, 2018). Hence, this industry is one of the largest industries in the world (Gibbs, Guttentag, Gretzel, Yao, & Morton, 2018; Roberts & Shea, 2017). Over the years, researchers have been seeking to understand the relationship between firms from the lodging industry and people who do (not) have experience with these firms by focusing on business, economy, psychology, and sociology, and/or between these firms and those from other industries (Roberts & Shea, 2017). Thus, articles that contain keywords of lodging establishment types in their titles, abstracts and keywords domain are deemed as representing lodging-context research.

The progress and future of a research field is considered to be dependent on deeper knowledge of the past and it must build on the foundation of previous work (Benavides-Velasco, Quintana-García & Guzmán-Parra 2013). Likewise, knowledge creation to better understand a field's evolution and progress, through combining existing knowledge is argued to be 'the most important goal for any research community' (Tsai & Wu 2010: p 441). Examining the progress and understanding the future of a research field require analysis of the topical patterns, research lines, conceptual structure and its evolution from a historical perspective (Furrer, Thomas, & Goussevskaia, 2008). In this sense, scholars emphasize the importance of mapping the

relationships between concepts, topics and ideas for both intellectual and policy reasons (Ding, Chowdhury, & Foo 2001).

However, the knowledge domain of lodging literature has not been clearly identified so far. Although a substantial bibliographic production exists in hospitality and tourism (García-Lillo, Claver-Cortes, Ubeda-Garcia, Marco-Lajara, & Zaragoza-Saez, 2018; Koseoglu, Rahimi, Okumus, & Liu, 2016), there is still a dearth of studies that conducted advanced bibliometric analysis on lodging research. Hence, this study aims to fulfill a research gap where an advance bibliometric analysis such as co-word analysis is needed to further review lodging literature by providing an insight of actual contents and research topics in lodging studies (Leung, Sun, & Bai, 2017).

In other words, as more research in the lodging industry has been conducted, advanced bibliometric analysis of literature using co-word analysis in the lodging industry is needed to help the industry build its own body of literature. The analysis is also essential for future research to better understand this need as it will consolidate previous research in the lodging industry (Crossan & Apaydin, 2010; Jiang, Ritchie, & Benckendorff, 2017). Therefore, this bibliometric research is one of the first review studies in the hospitality and tourism field that elucidates the conceptual structure of lodging research to address issues through co-word and social network analyses (SNA). Specifically, this study aims to achieve the following objectives: 1) Identify the most representative keywords in lodging literature, 2) examine the dynamics of the conceptual structure of the literature, 3) identify the topologies of co-word network by period, 4) visualize critical keywords in the network, and 5) identify research lines in the lodging-context studies to present potential reserch agenda.

Literature Review

Overview of hospitality and tourism research

Previous studies that have reviewed hospitality and tourism research can be placed into two groups. The first group counts only the frequency of keywords related to hospitality and/or tourism to describe the knowledge domain. Examples of such studies include Ballantyne, Packer, and Axelsen (2009), Kim, Boo, and Kim (2013), Ma and Law (2009), Thomas, Shaw, and Page (2011) and Tian, Lee, and Law (2011). For example, Wu, Xiao, Dong, Wang, and Xue (2012) investigated author-selected keywords in studies published in three main tourism journals - *Annals of Tourism Research, Journal of Travel Research*, and *Tourism Management* by the end of 2009. They identified 200 core keywords and 10 gene words. Further, Xiao and Smith (2006) identified 27 major subject areas in studies published in the *Annals of Tourism Research* from 1973–2003. Ruhanen, Weiler, Moyle, and McLennan (2015) highlighted the subjects and contextual themes specifically in sustainable tourism research.

The second group utilizes co-occurrence (e.g., co-word analysis) analysis to examine the keywords of articles or studies. This group comprises only a few studies. Ying and Xiao (2012) revealed the knowledge linkages in tourism dissertations conducted in the period 1994–2008 and found 21 subdomain subjects and interconnected knowledge systems. Racherla and Hu (2010) investigated co-authorship networks in three leading tourism journals: *Annals of Tourism Research, Journal of Travel Research*, and *Tourism Management*. Their study provided a contextual view of co-authorship networks and identified nine research streams based on these networks: marketing, information technology, sustainable tourism, industry studies, forecasting, hospitality, human resources, airlines/others, and segmentation. Hu and Racherla (2008) assessed the collaboration networks in the hospitality literature, including four leading journals, namely,

International Journal of Hospitality Management, Cornell Hotel and Restaurant Administration Quarterly, Journal of Hospitality and Tourism Research, and *International Journal of Contemporary Hospitality Management*. On the basis of these collaboration networks, the authors highlighted nine research streams: marketing and sales, consumer behavior, finance and accounting, human resources, information technology, customer service and operations, food and beverage, industry studies and education, and strategic management and performance. However, these studies did not address the knowledge domain of lodging studies. Therefore, studies that consider the knowledge development of lodging studies are needed to gain a better understanding and to help researchers build a theory of lodging (Roberts & Shea, 2017).

Co-word analysis

The co-word analysis technique has been used by numerous scholars and has been validated in different fields (Feng, Zhang, & Zhang, 2017; Krambia-Kapardis & Thomas, 2006); (Ravikumar, Agrahari, & Singh, 2015; Topalli & Ivanaj, 2016). By employing this technique, connections among concepts that co-occur in the keywords of documents will be established for further analysis (Zupic & Čater, 2015). In detail, co-word analysis is a tool that uses document titles, keywords, abstracts, or full texts (Zupic & Čater, 2015) to explain the knowledge domain or cognitive structure (Börner, Chen, & Boyack, 2003) of given disciplines. It "rests on the assumption that an article's key-words constitute an adequate description of its content or, more precisely, of the links the paper establishes between problems. Two key-words co-occurring within the same paper are an indication of a link between the topics to which they refer" (Cambrosio, Limoges, Courtial, & Laville, 1993, p. 123).

Co-word analysis is employed to trace the development and dynamics of science by discovering linkages among subjects in a research field through comparing the network maps for

different time periods (He, 1999). Therefore, this analysis helps researchers address the following questions: (i) What are the dynamics of the conceptual structure of a field? (ii) What are the conceptual building blocks of a literature? (iii) What are the topics associated with a particular line of research? (iv) What is the evolution of concept X? (Zupic & Čater, 2015, p. 439). Co-word analysis has been employed in numerous disciplines or fields, such as information behavior (Shen, Xiong, & Hu, 2017), infometrics (Sedighi, 2016), strategic management (Ronda-Pupo, 2015; Ronda-Pupo & Guerras-Martin, 2012), corporate social responsibility (Qin, Wang, Zhao, & Kaspersen, 2016), and family business (Benavides-Velasco, Quintana-García, & Guzmán-Parra, 2013). For the purpose of this current study, we employed social network analysis to delve into the conceptual structure of lodging studies.

Social network analysis

The knowledge domain of given disciplines generates knowledge networks as a special type of social network (Ying & Xiao, 2012). Hence, SNA of keywords helps researchers identify the most important keywords in a network of a given field and this is measured by centrality (a proportional measure of the number of direct ties a keyword has out of the total number of possible ties) (Hollenbeck & Jamieson 2015). The strength of networks indicates the maturity level of disciplines or fields. For example, while weak ties of knowledge networks identify weak levels of consensus among researchers and a low level of research productivity, strong ties exhibit the maturity level of disciplines (Ronda-Pupo, 2015). Therefore, social network analysis shows how a conceptual structure evolves and how such structures are effective in creating and disseminating knowledge (Casanueva, Gallego, & García-Sánchez, 2016).

SNA has become popular as an established technique of understanding networks, organizations, and phenomena reflecting its acceptance by scientific communities (Borgman &

Furner, 2002; Hollenbeck & Jamieson, 2015). In a social network, the basic unit is an actor (e.g. keywords). This network comprises of vertices and edges where vertices are key words and edges are links among them (Hollenbeck & Jamieson, 2015). In this sense, SNA is a method that assesses networks of relationships by mapping and analyzing relationships among different entities (Borgman & Furner, 2002; Racherla & Hu, 2010). In detail, social network analysis (Serrat, 2017) can be used to identify the individuals, teams, and units that play central roles; discern information breakdowns, bottlenecks, structural holes, and isolated individuals, teams, and units; create opportunities to accelerate knowledge flows across functional and organizational boundaries; strengthen the efficiency and effectiveness of existing formal communication channels; raise awareness of and enable reflection on the importance of informal networks and ways to enhance their organizational performance; leverage peer support; improve innovation and learning, and refine strategies.

Koseoglu et.al. (2016) suggest that scholars in the hospitality and tourism field should better understand the progress and evolution in the field so that they can further strengthen its academic foundation. They further argue that there is a room for improvement in advancing theories and promoting scholarly debates on the epistemological and ontological structure of knowledge creation in the field. More specifically, these researchers acknowledge that this can be done by conducting research using relational bibliometric studies (e.g. co-word, SNA) to answer more specific and comprehensive research questions in the field. In response, this paper provides the researchers of the hospitality and tourism field with a systematic evaluation to understand better the conceptual evolution, research lines and topical patterns of the lodging-context research. This can help us clarify the conceptual structure of the field and ultimately contribute to theoretical development (de la Hoz-Correa, Muñoz-Leiva & Bakucz 2018). Moreover, identifying and

understanding emerging trends in scientific disciplines can help researchers tackle with the changes caused by both internal and external factors in a timely manner (Chen, 2006). Finally, the organization and consolidation of lodging-context research requires a systematic review of its conceptual structure and evolutionary characteristics. This can help identify not only the themes, concepts and topics that have been investigated but also to provide future research directions. It can also suggest novel methodological approaches that may advance, promote and complement earlier research. Consequently, we believe that a systematic study that addresses these issues employing co-word analysis and SNA is needed in lodging context.

Methodology

To utilize co-word analysis via SNA we followed the procedure suggested by Zupic and Čater (2015) to be consistent with other bibliometric studies with regards to scope of data, data collection, preparation, analysis and visualization.

Scope of Data

To obtain data, we used several approaches when selecting those journals from which to access documents that we believe are related to lodging context. First, we considered Social Science Citation Index (SSCI) to select the journals within hospitality and tourism field. Second, we also included several influential journals that are not indexed in SSCI at the time we collected data. For instance, *Journal of Hospitality Marketing & Management* (JHMM) is ranked as a category 'A' journal in the Australian Business Deans Council (ABDC) Journal Quality List. Thus, JHMM was considered in this category. In line with this, while finalizing this paper, it was announced early January 2018 JHMM included in the SSCI. Lastly, a number of journals indexed in SSCI frequently publish hospitality articles. Hence, one of these journals, the *Service Industries Journal*, was considered in the sample since it is indexed in hospitality and tourism related index

such as *Hospitality & Tourism Index; Leisure, Recreation and Tourism Abstracts; Leisure Tourism Database.* All the journals accepted as a sample for the current study are presented in Table 1 (online supplement).

Data Collection

The first step in data collection was identifying the keywords in order to determine our sample papers. The keywords included "lodging, casinos, hotel, accommodation, hostel, lodge, Airbnb, motel, bed and breakfast, caravan parks, timeshare, couch surfing, resort, guest house, condos, cruises, sharing economy, and recreational vehicles (RVs)." In the second step, we limited our time frame between 1990 and 2016 and two of the co-authors read the abstracts, titles and keywords of the papers published in our sample journals. Data collection took place between April 2016 and March 2017. Finally, the two co-authors of the paper evaluated the papers obtained by keyword search and determined the sample articles related to the lodging industry with a view to ensure the validity of the data by reaching a consensus. To reach 100% inter-coder reliability rate, in the conflicts between these two authors, another author of the study helps them to reach consensus. Hence, by reaching 100% consensus for the articles making conflicts between two researchers inter-coder reliability was strength to increase validity and reliability of the study. Consequently, 2432 studies published between 1990 and 2016, including full-length articles and research notes with keywords, were found for the purpose of this study. Figure 1 shows the distributions of 2432 articles by year and journal.

Insert Figure 1 about here

Data Preparation

The keywords of articles were considered to address the conceptual structure of lodging studies. The researchers followed a few steps to standardize the keywords of articles for analysis, as indicated in previous studies (Ding, Chowdhury, & Foo, 2001; Feng et al., 2017; Ravikumar et al., 2015; Yue, 2012). First, synonyms were eliminated. In periodic meetings two authors of this study eliminated synonyms by discussing their meanings. When they were conflicted with regard to the meanings, to reach 100% inter-coder reliability rate they looked through the related article once more to reach a consensus. Second, the authors replaced all abbreviations with their full forms. To identify abbreviations, authors revisited the related articles one more time. Third, words with broad meanings, such as hospitality and tourism, were eliminated. Lastly, plural words were changed to their singular forms to be consistent in the analysis (Ravikumar et al., 2015).

Analysis and Visualization

A spreadsheet was created to retain the keywords from the articles in order to utilize co-word analysis and conduct descriptive statistics. Co-word analysis helps researchers determine and compare a number of outputs' keywords that made use of any particular pair of papers and emphasize similarity or dissimilarity of the two paper's contents (Koseoglu et al., 2015). As is seen in Figure 2, the interconnections of keywords are shown in the co-word network (Fernandes et al. 2017). For example, as can be seen in the network in Figure 2, the strength of ties within the whole network can be identified by the demonstration of networks (Koseoglu, 2016). The size of the nodes and the thickness of the lines present the keywords that have a strong position in this network. Also, the incidence of clustering in the network can be presented by the color of the nodes and lines (Van Eck & Waltman, 2010). Due to the journal requirement we put the figure white and black colored. Based on this example in original network two clusters were generated. While red colored cluster includes Keyword 2, Keyword 7, Keyword 8, Keyword 9, and Keyword 10, blue

colored cluster includes Keyword 1, Keyword 3, Keyword 4, Keyword 5, and Keyword 6. Many studies validated this approach to investigate the contextual structure of disciplines (Leung et al. 2017; de la Hoz-Correa, Muñoz-Leiva, & Bakucz, 2018).

Insert figure 2 about here

Before conducting co-word analysis, we needed to decide what bibliometric software (BibExcel, Sitkis, SciMat etc.) should be selected, and what method was chosen to identify research lines of the given field. Hence, first we inserted the keywords into the Microsoft Excel spreadsheet. Since we utilized co-word analysis via the keywords, frequency analysis was used to reveal the errors in the spelling of keywords. Before we conduct analyses, we made sure there is no spelling errors in the dataset by correcting them. We used BibExcel software due to its ability to prepare the data for further network analyses. We considered the network analysis as it has advantages in determining actors' positions in the field. Network analysis and multidimensional scaling are two different options for visualizing relationships between actors in a field. Network analysis was selected to demonstrate the relationships between co-words. We used VOSviewer software program because it can determine clusters in a field and can present strength of the relationships in a network. In order to determine network attributes, we used other network software programs such as Pajek, and Ucinet 6. To see the changes in the literature, five sub-periods (2016–2012, 2011–2007, 2006–2002, 2001–1997, and 1996–1990) were created. We decided to generate these periods with a view to uncover unknown trends and patterns in the field, instead of determining them according to real periods which was done by Ramos-Rodríguez and Ruíz-Navarro (2004).

Results

Descriptive analysis of keyword frequency

Table 2 (online supplement) presents the extracted standardized keywords for each period. We extracted 4812 keywords for the entire period (1990–2016), with 1.98 keywords per article and 43% keyword/appearance ratio. In the first period (1990-1996) the number of keywords per article and the keyword/appearance ratio were 3.40 and 0.84, respectively, and they decreased slightly in each period. Conversely, this study results showed that only a small number of keywords were used occasionally in the articles and that only very few themes were the main focus of lodging articles. This situation is clearly illustrated in Figure 3, which shows that the keywords present a power law distribution (exponent: −0.66, R^2: 0.90). That is, only a small number of keywords were used occasionally in the articles, and only a few themes were the main focus of lodging articles (Hu & Zhang, 2015).

Insert Figure 3 about here

Table 3 (online supplement) presents the top 30 keywords for each period. However, we obtained more than 30 keywords for a few periods. From each period, based on the keywords used, it is evident that numerous studies in lodging still focus on the keywords "hotel" and "customer satisfaction." As is also evident from the entire period, "hotel" was the most common keyword in lodging studies followed by "customer satisfaction," and "service quality." In addition, based on keywords used, most lodging studies were related to marketing, human resource management, revenue management, and strategic management. In the last period (2012–2016), keywords related to the internet and its derivatives were common, but those related to food and beverage were not

(Hu & Racherla, 2008). With regard to country based on keywords used, apart from Hong Kong and Turkey, there was a significant increase in lodging studies in China. This outcome may reflect the increase in contributions from developing countries (Ballantyne et al., 2009) and the emergence of the Asian paradigm in the lodging industry (Ahn, Ho, Chen, & Chon, 2013).

Co-word network analysis of lodging studies

We analyzed the evolution network attributes of lodging studies by focusing on the longitudinal structure of the network and critical keywords in the network.

Longitudinal structure of the network of lodging studies. Table 4 (online supplement) lists the attributes of networks for each period, and Figure 4 illustrates these networks for each period in scale-free forms, which are "graphs with few nodes of higher degrees and many of lower degrees" (Jia, Hoberock, Garland, & Hart, 2008, p.1). The degree shows how many keywords a keyword engages (Koseoglu, 2016). As evident from Figure 4, many keywords have lower degrees. In other words, the network structures are atomized during the first two periods (1990-1996 and 1997-2001). The structures applicable during the earlier periods were evidently immature and governed by co-word dyads and tryads. In the third period (2002-2006) size the largest component almost doubled from 465 to 884 (see Table 2). The network structure was increasing complex, since the components became close-knit components, as measure by the frequency of co-occurrences. Many keywords have been used one or two times, since many ties among keyword relationships are thinner than other relationships. This evolution shows a maturing of the co-word networking in lodging-context reserch.

One of the main indicators of a network is network density, which shows the degree of connection among actors or participants (De Laat, Lally, Lipponen, & Simons, 2007; Ying & Xiao,

2012). Network density ranges from "0," where nodes are isolated from one another, to "1," where nodes are connected to one another (Ying & Xiao, 2012). For example, if there are 20 researchers and each researcher is connected to the other 19 researchers, it shows that the nodes are connected to one another, which indicates that the degree of connection among the 20 researchers is high or "1." Yet, in this case, the density of each period is low (Table 4). This result indicates a decline in the cooperation of keywords in lodging studies between 1990 and 2016, as shown in the subject area network of tourism dissertations (Ying & Xiao, 2012). Therefore, it can be said that lodging studies are diverse and have a high potential to link to other areas or fields.

Another important indicator is the connectedness index, which "indicates the number of connections within the network taking into account the number of possible relations. A complete network exists when all the vertices that make it up are interconnected, that is, there are no vertices in isolation" (Ronda-Pupo & Guerras-Martín, 2010, p. 828). The connectedness in the keyword network increased since the keywords in isolation decreased. This situation can also be seen in the indicator number of components, size of the largest component, and percentage of the size of the largest component in Table 4. It is evident that the connectedness steadily increased, except in the period 2007–2011.

The last indicator in this study is betweenness centrality, which measures the extent to which a particular point lies "between" the various other points in a network. A high score reflects a hierarchical network structure, in which a single or a small number of nodes in the network tend to be more central than other nodes (Ying & Xiao, 2012, p. 460). In the keyword network of lodging studies, betweenness centrality increased in each period, except in 2007–2011. The scores were around 50% after the second period (1997–2001), thereby indicating that certain keywords became influential in all periods. The scores continued to increase, mirroring a decreased diversity

in lodging studies. This situation is evident in the illustration of the network for each period (Figure 4). Initially, the period keyword diversity in lodging studies is seen to have grown, but later the diversity became centered on one establishment in the lodging industry: hotel. Therefore, lodging studies were found to be mainly hotel-dominated studies.

Critical keywords in the network. To identify critical keywords in the network, we examined the degree centrality, betweenness centrality, and heat map. Degree centrality shows the position of each keyword in the overall structure, while betweenness centrality describes the role played by keywords in the association between themes (Hu & Zhang, 2015, p. 335). In other words, these two indicators illustrate the importance of the keyword. Table 5 (online supplement) presents the top 50 keywords that display a high degree and betweenness centralities. One of the best ways to visualize the conceptual structure of a field is through heat maps. As shown in Figure 5, "the heat map uses warmer colors and bolded fonts to emphasize concepts that are frequently used, while words that are used only sporadically are shown in colder colors and subdued smaller fonts" (Zupic & Čater, 2015, p. 447). From this map, one large group of words dealing with hotel and other subjects, such as marketing, organizational behavior, and human resource management, can be distinguished. Therefore, based on this analysis, the critical keywords found were hotel, customer satisfaction, service quality, job satisfaction, revenue management, electronic word of mouth, loyalty, and corporate social responsibility, among others. However, there is a week relationship between hotel studies and concepts surrounding the large group. On the other hand, Singapore, Hong Kong, and Cameroon are emerged as sample in hotel studies, and data development analysis is significantly used in hotel studies as seen in the large group.

Insert Figure 5 about here

To observe the relationship among keywords in the knowledge domain of lodging-context studies by identifying the critical keywords, in the next analysis, we eliminated the domain stop word (hotel), which had a high percentage in the analysis domain (Hu & Zhang, 2015). Figure 6 illustrates the heat map of this network. Two groups of words can be distinguished: one that is related to strategy dealing with mainly China lodging industry and one that deals with marketing topics, such as customer satisfaction and customer loyalty. Additionally, job satisfaction, work-family conflict, and online review were emerging as critical keywords in the network. However, to increase maturity and density in the network more studies are needed in human capital, environmental management, revenue management, sharing economy, forecasting, international hotel chains, and sustainability, among others, to link to the main research areas, such as strategy and marketing.

Insert Figure 6 about here

To identify critical keywords and research lines in lodging-context studies VOSviewer was used to identify clusters in networks to show closely related keywords in the network. Consequently, VOSviewer generated 30 clusters from the network. Table 6 (online supplement) lists the representative keywords of the first eight clusters generated by VOSviewer. These clusters help us identify research line in the lodging-context studies. Table 7 (online supplement) presents the research lines and potential research lines.

Cluster 1. Organizational behavior

This cluster includes keywords related to job satisfaction, organizational commitment, turnover intentions, and work family conflict. Additionally, there are some keywords related to

human resource management. These studies were generally conducted in Turkey, Cameroon, Northern Cyprus, and Romania.

Cluster 2. Social media

This cluster comprises keywords regarding social media, electronic word of mouth, online review, trust, TripAdvisor, online hotel review, Facebook, reputation management, and user-generated content. Keywords on service failure, service recovery, complaint, national culture, and reputation management are also included. This shows how social media is important to manage lodging establishments' operations, particularly related to service failure and service recovery, at strategic and tactical level by focusing on national cultural differences.

Cluster 3. Efficiency and environmental management systems

This cluster comprises keywords related to efficiency and environmental management systems. These studies mainly focus on countries/regions from Asia like Hong Kong and Taiwan. Data envelopment analysis, case study and Delphi methods are very common in these studies. Also, these studies focus on travel agency and tour operator as small and medium enterprises.

Cluster 4. Corporate social responsibility

This cluster includes keywords related to consumer loyalty, relationship marketing and corporate social responsibility. Hence, these studies address the relationship between corporate social responsibility and issues related to marketing. On the other hand, transformational leadership is effective in this cluster. Taiwan and Macau have been emerged as country-regions in this cluster. Macau related topics mainly related to casino since casino industry is dominant industry in Macau.

Cluster 5. Human resource management

This cluster includes mainly human resources management keywords such as career development, recruitment, selection, knowledge sharing, training, competency and, knowledge transfer. Other keywords are leadership, organizational culture, and green marketing. This shows that there is a very important potential for researchers to seek the link between human resource management functions and other organizational functions such as leadership, organizational culture, and green marketing.

Cluster 6. Customer relationship management

This cluster includes keywords such as customer services quality, customer relationship management, emotional intelligence, emotional labor, burnout, customer orientation, marketing strategy, and hotel frontline employee. Managing relationship with customers provide a unique advantage for companies. Hence, the management of these relationships has vital for the organizations.

Cluster 7. Cruise business

This cluster includes keywords related to cruise business, including satisfaction, perceived value, repurchase intention, and word-of-mouth. This shows marketing activities in cruise business have been commonly addressed. On the other hand, more studies are needed for cruise business from lodging perspective.

Cluster 8. Resource-based view

This cluster comprises keywords related to how lodging establishments can gain competitive advantages via resource-based view as one of the dominant approaches in the strategic management field. On the other hand, entrepreneurship, servant leadership, innovation, destination image, and guest behavior focused studies have been emerged in the other clusters. This shows that more studies related these issues are needed in lodging-context.

Discussions

As an advanced bibliometric analysis, this study provides a bigger picture of actual contents and research topics in lodging literature. Besides, this paper is an attempt to present a more objective evaluation of the conceptual evolution of lodging-context research that can substantiate earlier studies. In so doing, we can clarify the conceptual configuration of the field and ultimately contribute to theoretical development (de la Hoz-Correa, Muñoz-Leiva & Bakucz 2018). In addition, the present study contributes to existing literature by presenting the evolution of the conceptual network of lodging studies. The knowledge domain of lodging as a multidisciplinary field (Roberts & Shea, 2017) has been expanding, with greater focus on business and economic activities of hotels. As the network density is low, lodging as a field is at a relatively early growth level and has a degree of openness and vibrancy for multidisciplinary collaborations (Ying & Xiao, 2012).

Results of this current study are not only consistent with those of several previous studies (Hu & Racherla, 2008; Huang & Hsu, 2008; Wu et al., 2012) but they also offer additional insights on lodging-context research. The keywords in the clusters show the development status of lodging studies. However, this development is hotel-focused. As industry structure is of significance (Grant, 2016; McGahan & Porter, 1997), more studies are needed on other lodging-related establishments or industries, such as motels, timeshare, bed and breakfasts, sharing economy, couch surfing, resorts, Airbnb, guest houses, hostels, condos, cruises, casinos, caravan parks, and RVs, as well as on building a theory on lodging that highlights guest behavior in hotels (Roberts & Shea, 2017).

The other contribution is related to underdeveloped research themes. As noted earlier, among many keywords used, "hotel," "customer satisfaction," and "service quality" were several

commonly used keywords identified in lodging studies. These indicate that a majority of studies conducted in lodging were mostly related to strategic management, marketing, human resource management, and revenue management, and using "hotels" as a sample of studies. Subsequently, studies on aforementioned topics have become saturated and are relatively mature, which implies that lodging literature can still be extended by adding more studies from immature topics and using different study samples, as stated in Figures 4 and 5. The last contribution is related to regional knowledge stock. There is a significant knowledge stock in the hotel industry in developing countries, including China, Hong Kong, Turkey, and Taiwan. To improve the status of lodging studies, more studies focusing on other developing countries such as Brazil and Russia are needed.

Limitation and future studies

This study has several limitations, which offer avenues for future research. First, the co-word analysis is the subjective nature of visualization interpretation (Ramos-Rodríguez & Ruíz-Navarro, 2004). Second, the use of different time frames (five-year time frame versus ten-year time frame) could result in different interpretations. Third, our sample does not represent book chapters, books and proceedings as well as some of the emerging journals that publish papers related to lodging context. Finally, we collected data starting from the year 1990. Considering these limitations, we can recommend several areas for future research. First, researcher can conduct similar studies within other subfields of hospitality and tourism literature (Koseoglu et al., 2016). Also, future research can combine this method with other bibliometric methods including citation analysis, co-authorship analysis, and co-citation analysis to examine the knowledge base of lodging studies. Second, researchers can investigate the interactions among selected subdomains based on scientific discipline and/ or type of lodging (Ying & Xiao, 2012). Finally, co-word

analysis can be conducted by considering region-based studies. For example, researchers can examine how the conceptual structure of China-oriented lodging studies has been evolving.

Conclusions

This study aimed to investigate the conceptual structure of lodging studies published in 16 leading academic journals in hospitality and tourism between 1990 and 2016 through co-word and social network analyses. As discussed above, this is the first study presenting and discussing study results on co-word and social network analysis in lodging research in the hospitality and tourism field. The findings of this study can help researchers in the hospitality and tourism field understand better the progress and the future of the field from a historical perspective. This study makes several important contributions to the body of knowledge. First, as a complement to review of Ying & Xiao (2012), this current study is the first comprehensive review on lodging-context research to map the progress and evolution of the field. Thus, this study seeks to promote the field and strengthen its academic foundation by uncovering the conceptual structure of the field. Second, this study identifies important research gaps and provides implications for future research to help hospitality and tourism scholars better position their research studies in terms of research topics and methodologies. Third, as this study employed an objective quantitative review via co-word analysis, this study substantiates and complements subjective literature reviews based on a qualitative approach as well as help cross-validate the findings of these earlier reviews. Forth, from a methodological perspective, this study addresses the need for more relational bibliometric studies in the hospitality and tourism field by deploying the use of quantitative review techniques (e.g. co-word analysis). Fifth, this study fosters a debate on knowledge creation by organization and consolidation of the extant literature. This can help both scholars and practitioners grasp important

insights. This is because understanding emerging trends and hotspots in a field is of great importance not only for scholars but also industry practitioners (Wu, Jin & Xue 2017).

Last but not least, considering the dramatic increase in the volume of scientific outputs and difficulty of keeping track of these vast literatures in specific fields, researchers and especially doctoral students need to make sense of this information explosion (Zupic & Čater 2015). In this regard, this study provides insights by identifying the most representative keywords in lodging-context literature, examining the dynamics of the conceptual structure of the literature and identifying research lines in the lodging-context studies to present potential research agenda.

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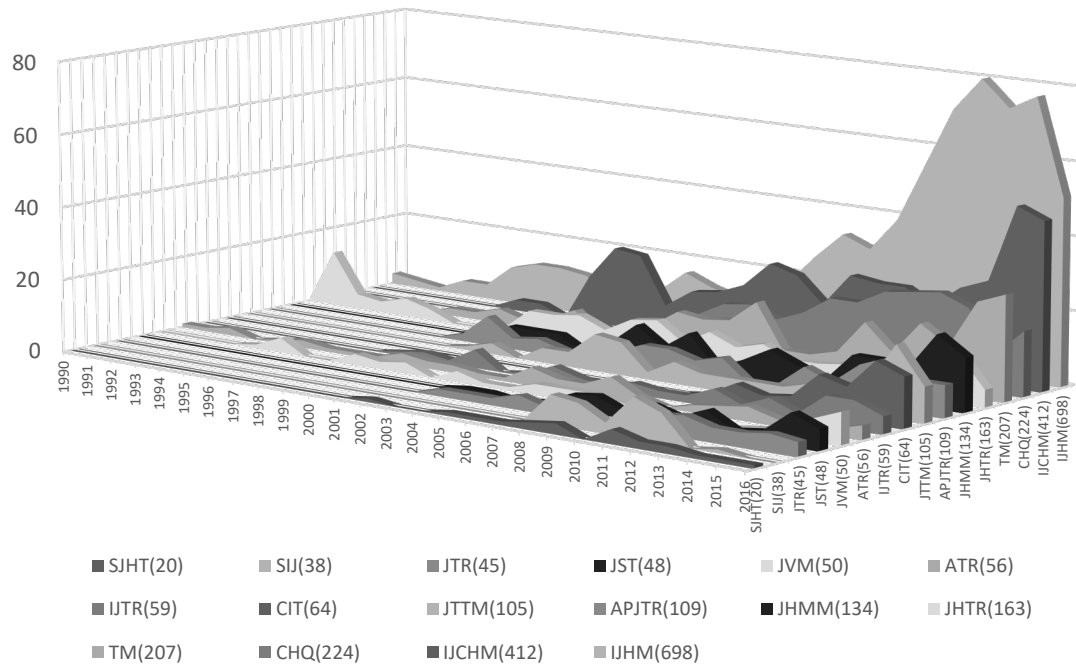
Figure 1. Number of articles by year and journal

Notes: SJHT (Scandinavian Journal of Hospitality and Tourism); SIJ (The Service Industries Journal); JTR (Journal of Travel Research); JST (Journal of Sustainable Tourism); JVM (Journal of Vacation Marketing); ATR (Annals of Tourism Research); IJTR (International Journal of Tourism Research); CIT (Current Issues in Tourism); JTTM (Journal of Travel & Tourism Marketing); APJTR (Asia Pacific Journal of Tourism Research); JHMM (Journal of Hospitality Marketing & Management); JHTR (Journal of Hospitality & Tourism Research); TM (Tourism Management); CHQ (Cornell Hospitality Quarterly); IJCHM (International Journal of Contemporary Hospitality Management); IJHM (International Journal of Hospitality Management)

Articles

| Article 1	Article 2	Article 3	Article 4	Article 5	Article 6	Article 7	Article 8	Article 9	Article 10
Keyword 1	Keyword 2	Keyword 3	Keyword 2	Keyword 5	Keyword 2	Keyword 7	Keyword 7	Keyword 9	Keyword 1
Keyword 2	Keyword 3	Keyword 1	Keyword 5	Keyword 2	Keyword 1	Keyword 4	Keyword 2	Keyword 10	Keyword 4
Keyword 3	Keyword 1	Keyword 2	Keyword 6	Keyword 3	Keyword 8	Keyword 2	Keyword 10	Keyword 2	Keyword 6
Keyword 4	Keyword 2	Keyword 6	Keyword 1	Keyword 8	Keyword 9	Keyword 10		Keyword 1	Keyword 3
Keyword 5	Keyword 5		Keyword 3		Keyword 10				Keyword 2
Keyword 6	Keyword 7		Keyword 9						

Simple Co-word Network of the paper
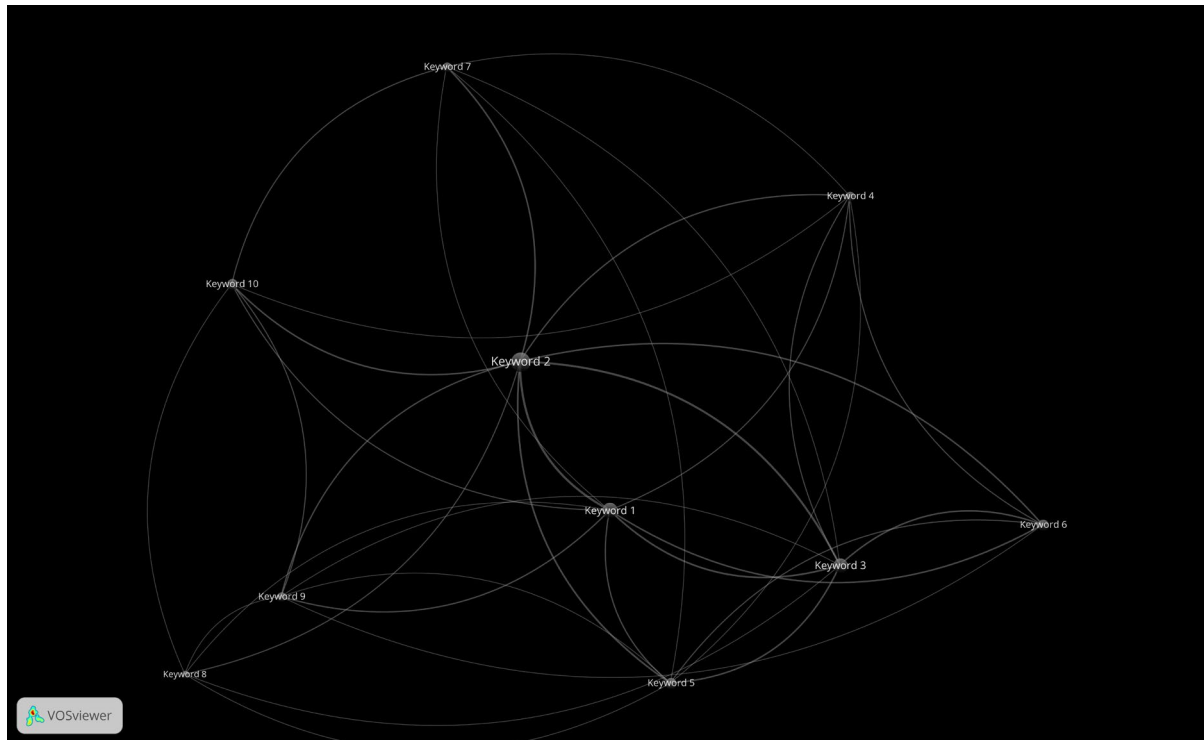
Figure 2. Co-word Network for ten articles as an example

Adapted from (Benckendorff, 2010)
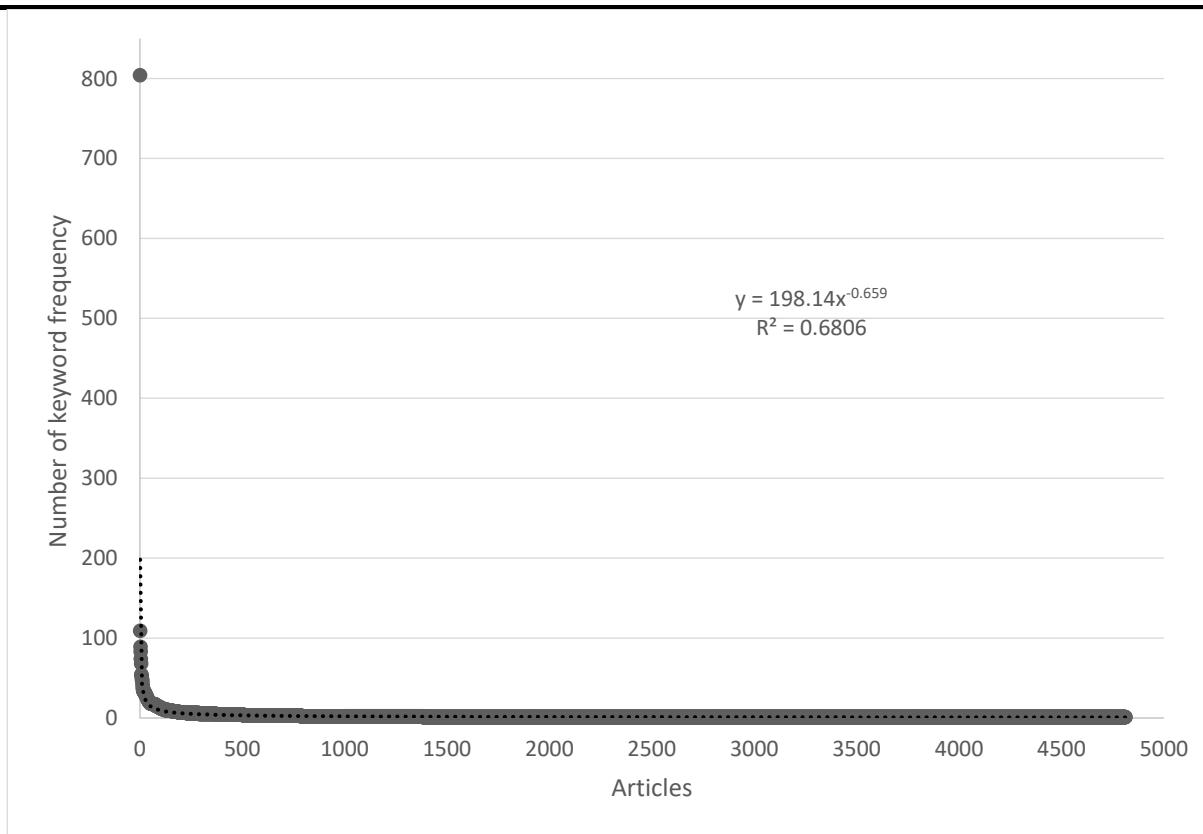
Figure 3. Distribution of frequency of number of keywords of lodging studies (1990–2016)

1990–1996

2007–2011

1997–2001

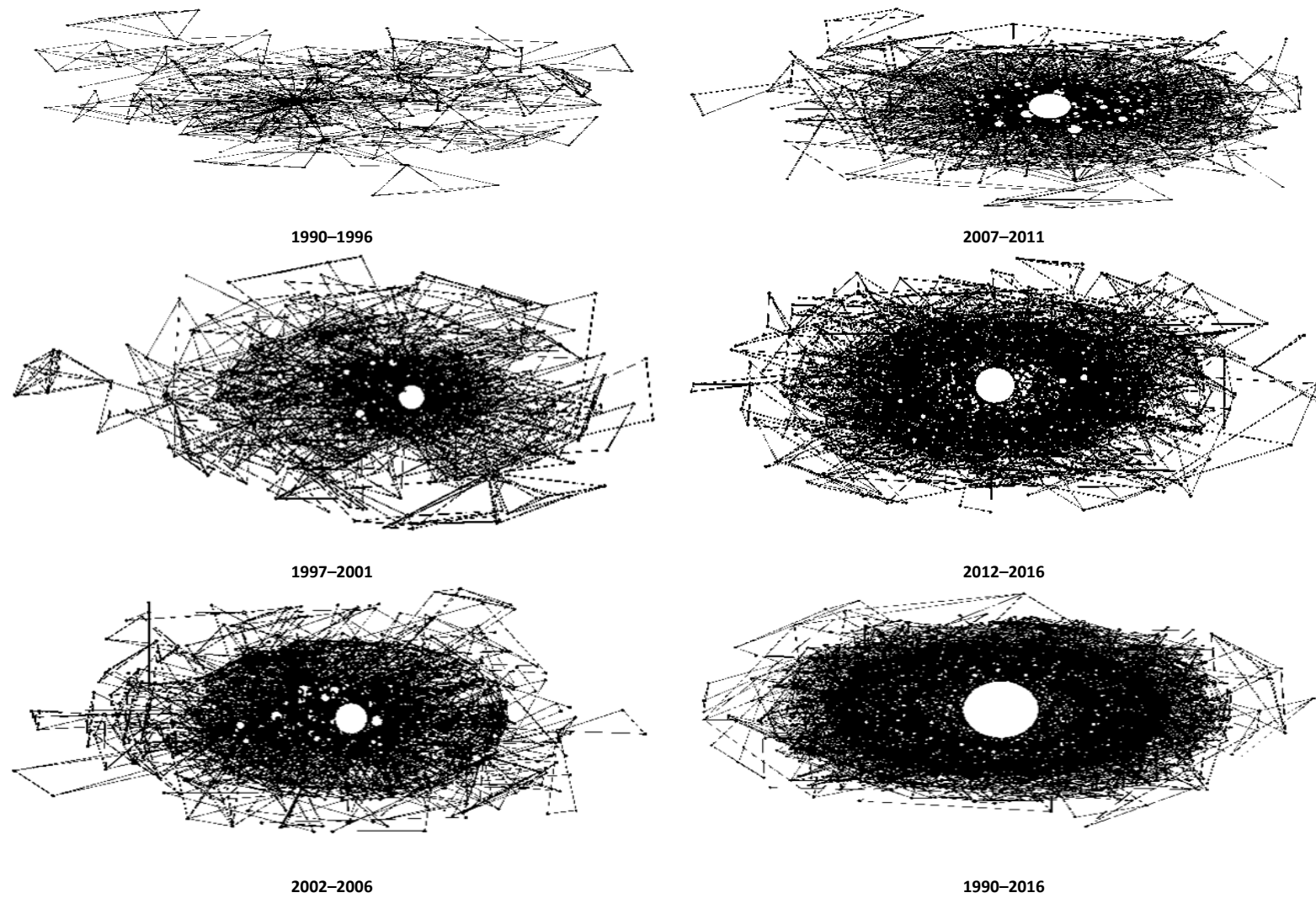**2012–2016**

2002–2006

1990–2016

Figure 4. Social network scale-free form visualization by period

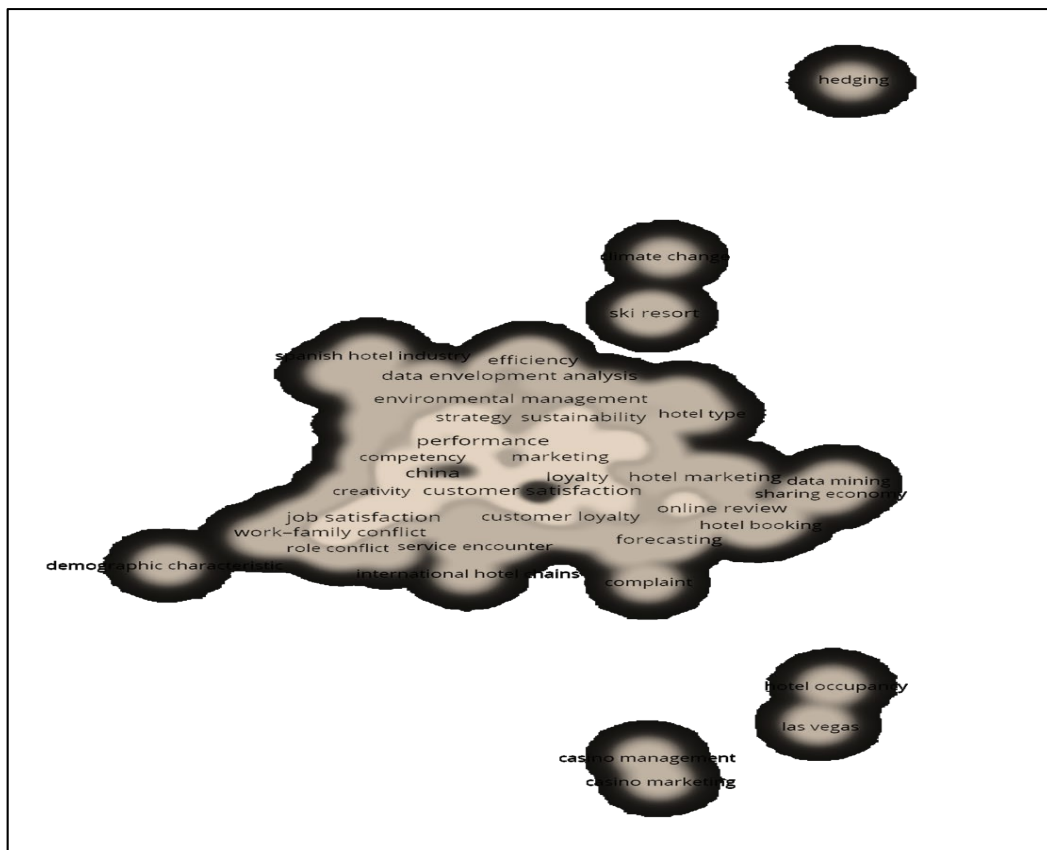**Figure 5. Density visualization of critical keywords in the network (1990–2016)**

Figure 6. Density visualization of critical keywords in the network (1990–2016)