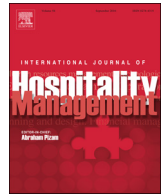




Contents lists available at ScienceDirect

International Journal of Hospitality Management

journal homepage: www.elsevier.com/locate/ijhm

A review of restaurant research in the last two decades: A bibliometric analysis

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ARTICLE INFO

Keywords:

Restaurants
Bibliometric analysis
Co-word analysis
Top ten authors
Web of science
Citation index

ABSTRACT

The present paper presents the results of a bibliometric analysis of published academic research dealing with restaurants in the fields of hospitality, leisure, sport and tourism. In particular, it aims to identify the structure of relationships between previous and current themes, predict emerging trends and provide a longitudinal perspective on this research, covering the period 2000–2018. This approach provides an exhaustive analysis for the past two decades from over 700 papers.

The findings show, for example, that customer satisfaction is the motor theme with the greatest impact and the study of emotions is an underdeveloped theme; interest in healthy eating is witnessing gradual growth; and brand equity, culture and innovation all constitute new research themes. The future of research dealing with restaurants will tend to focus on new emerging technologies, both in the restaurant sphere and in the context of research methodologies.

1. Introduction

The rapid growth of the hospitality industry has attracted the interest of many researchers in recent decades (Li et al., 2017). Research dealing with restaurants, in particular, has grown significantly over the last 30 years (DiPietro, 2017). Indeed, it now constitutes the most important area of scholarly work in the hospitality sector, second only to hotel research itself, both in the management literature, in general (Guillet and Mohammed, 2015), and marketing, in particular (Line and Runyan, 2012).

The advancement of the knowledge-base in any scientific discipline derives from the theoretical and empirical contributions made by scholars over time. Therefore, a periodic analysis of the knowledge accumulated is necessary, in terms of output and impact, to understand the current state of this discipline (Li et al., 2017).

When analyzing the state of the art regarding a domain of knowledge, bibliometric analysis is commonly used. This approach provides quantitative information to identify the keywords, the relationships between them and the citations generated by articles published during a given timeframe (Evren and Kozak, 2014). Unlike the qualitative nature of studies based on literature reviews, quantitative research provides a

more in-depth picture of the topic in question, derived from the different approaches taken by studies published over the years and from the relationships between them (Muñoz-Leiva et al., 2015). Bibliometric analysis has been used in a number of disciplines such as strategic management (Ramos-Rodríguez and Ruiz-Navarro, 2004) and consumer behavior (Muñoz-Leiva et al., 2012). It has also been conducted in the tourism field to analyze and evaluate the advancements made and the direction that tourism research is taking (Koc and Boz, 2014; Koseoglu et al., 2016b).

According to Li et al. (2017), ongoing efforts to review and analyze the scientific output on hospitality are particularly important, due to the maturity of the discipline and the need to monitor its process. Despite the importance of the restaurant trade for the hospitality industry, to date no study has been identified that applies the bibliometric approach to this field. The present study seeks to address this gap in the academic literature by responding to the call for greater knowledge on the state of the art in restaurant and portraying its thematic evolution. Focusing on the period 2000–2018 in its exhaustive analysis of the scientific literature on restaurants, the study applies a bibliometric method via co-word analysis and science mapping. Specifically, it reviews the scientific papers on restaurants derived from the Web of

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Received 23 April 2019; Received in revised form 2 August 2019; Accepted 17 September 2019

Available online 01 October 2019

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Science (WoS) citation index, within the "Hospitality, Leisure, Sports, and Tourism" category.

The importance of this work lies in the fact that it helps both academics and professionals to better understand the contribution of this topic to scientific knowledge, from two perspectives. On the one hand, it helps analyze the performance of restaurant research in terms of its principal authors and institutions, the volume of publications per year, and the bibliometric studies conducted to date in this sub-area. On the other hand, it identifies the core restaurant-related issues in hospitality and tourism that have attracted the attention of researchers over the last two decades, and how these themes have evolved in line with changes in society, technology, and the evolution of the discipline itself. The results will help scholars identify the current direction of quality research in the field of restaurants, to inform and design future studies that capture growing themes and help support latent topics.

2. Background to restaurant research

Restaurants have provided a research topic throughout the literature, from different points of view. First, from the *management perspective*, restaurants have attracted scholarly interest, regarding issues such as profitability (Thompson, 2009), the concept of capital structure (Upneja and Hua, 2006) and corporate social responsibility (Ham and Lee, 2011). Second, from the *customer perspective*, academic research has focused on restaurant perception (Ekinci et al., 2005), the measurement of customer satisfaction and loyalty (Gupta et al., 2007), food quality, restaurant atmosphere and service (Wall and Berry, 2007), and brand perceptions (Hyun, 2009). Generally speaking, customer satisfaction is one of the more widely-studied variables (Jang and Zhao, 2006; Lee et al., 2005). Finally, another important set of studies has focused on examining the restaurant sector from the *tourism and hospitality industry perspective*. This perspective addresses topics such as identification of the information sources and motivations that affect consumer preferences when selecting restaurants (Batra, 2008) and tourist attitudes toward luxury restaurants (Cheng and Peng, 2018), among others. From this approach, the general implication is that tourism organizations and restaurants make a significant contribution to the creation of experiences (Matson-Barkat and Robert-Demontrond, 2018). The present work will focus on this latter perspective.

3. Bibliometric analysis in hospitality and tourism

The term "bibliometrics" was introduced by Pritchard (1969), who defined it as the application of mathematical and statistical techniques to books and other forms of communication. The main bibliometric methods are performance analysis, which is concerned with scientific impact and the number of citations achieved, and science mapping, which refers to the graphic representation of the structure of scientific research and its evolution in the intellectual, theoretical or social sphere (Montero-Díaz et al., 2018).

Bibliometric analysis has been used to map the knowledge-base in many disciplines, including management information systems (e.g. Culnan, 1986), consumer behavior (e.g. Muñoz-Leiva et al., 2012), integrated marketing communications (e.g. Muñoz-Leiva et al., 2015), and financial marketing (e.g. Muñoz-Leiva et al., 2013). This type of analysis has also been developed in tourism research, and has grown in importance, in line with the growth of knowledge in this field (Hall, 1991). Table 1 shows the different bibliometric studies from the WoS category "Hospitality, Leisure, Sport, and Tourism" published between 2000 and 2018.

In the restaurant field, DiPietro (2017) applied an exclusively qualitative approach to determine the primary research trends; but no studies to date have been identified that apply the bibliometric approach to the topic of restaurants in hospitality and tourism research. The only such study that resembles our sphere of interest is that of Okumus et al (2018b), who examine the evolution of food and

gastronomy research in hospitality. They analyze 462 papers on this topic, concluding that gastronomy became popular among scholars after 2000.

Given the virtual absence of bibliometric studies on scientific research dealing with the topic of restaurants, we believe it is of interest to the scientific community to conduct a specific bibliometric study covering the last two decades.

4. Methodology

4.1. Bibliometric analysis: data sets

Any bibliometric analysis requires consultation of different bibliographical databases. The primary databases are provided by WoS, followed by others such as Scopus and Google Scholar (Murgado-Armenteros et al., 2015).

Following the standard bibliometric protocol, the data for this research were extracted from the WoS database¹, which includes records of the author-provided keywords from each document published. WoS is a leading citation database, with multidisciplinary information from more than 18,000 high impact journals, 180,000 conference proceedings, and 80,000 books from around the world. With over 100 years of comprehensive coverage and more than one billion cited reference connections, it can search with confidence and explore the complete network of citations underpinning the significant research in any field. Many previous studies have used this database (e.g. Muñoz-Leiva et al., 2012, 2013).

Bibliographic records were downloaded from the main WoS collection for period 2000–2018, based on the following query: TS = 'restaurant' OR TS = 'restaurants' where the TS field is a search based on a given topic (title, abstract and keywords). The rationale for taking the year 2000 as the start-point of the period under study was that the database yielded virtually zero publications on this topic within the "Hospitality, Leisure, Sport, and Tourism" field prior to that year. We identified only three such papers (all published in 1985), an insignificant number compared to the total of 740 academic publications identified for the period under study. This does not mean there were no academic publications on restaurants in the hospitality industry prior to the year 2000, but simply that any such works were published in journals not indexed in the WoS database, or not indexed there prior to the year 2000.

Fig. 1 shows the evolution of the publications per year, up to the end of 2018. We can observe a proliferation of publications on restaurants in the field of hospitality and tourism, with a more pronounced increase from 2008 onward. While in the first seven years (2000–2007) growth was slow, thereafter the number of publications grew continuously.

The large number of publications in 2013 is due to the high level of interest generated in previous years by topics such as electronic word-of-mouth (eWOM) (Jeong and Jang, 2011), the effect of physical elements of the restaurant on customer response (Ryu and Han, 2011), and customer intention and loyalty (Ha and Jang, 2010). In 2013, 2014 and 2015, the first three editions of the International Conference on Hospitality, Leisure, Sports and Tourism (ICHLST) took place, bringing together researchers from the most important universities worldwide. This major new event, in turn, gave rise to a significant volume of new studies, which can explain the peak number of such publications reached in 2016.

¹ The WoS's Core Collection Databases are: Science Citation Index Expanded (SCI-EXPANDED), Social Sciences Citation Index (SSCI), Arts and Humanities Citation Index (AandHCI), Current Chemical Reactions, Present Current Chemical Reactions, Index Chemicus, Present Index Chemicus, ISI Proceedings-Science and Technology (ISTP), ISI Proceedings-Social Sciences and Humanities Edition (ISSHP), Book Citation Index, Emerging Sources Citation Index.

Table 1
Bibliometric papers published in the WoS category “Hospitality, Leisure, Sport, and Tourism” (2000–2018).
Source: Own elaboration.

Authors (year)	Period	Research aims
Palmer et al. (2005)	1998–2002	Analyzes the rise of statistical methods in tourism research.
Gutiérrez and García (2008)	1906–2006	Examines monographs dealing with the martial arts.
Peralta and Pensado (2010)	1982–2008	Analyzes the scientific literature on the evaluation of performance and training in the tourism sector, from the psychological Human Resources perspective.
Hall (2011)	2005–2008	Analyzes research quality in the tourism field, based on the most important journals according to productivity and impact indices.
Santos and García (2011)	1956–2009	Analyzes the research on sports economics in the Social Sciences Citation Index (SSCI).
Shilbury (2011a)	1987–2007	Analyzes the influence of 7 <i>sports marketing and management</i> journals on studies dealing with sport published in 20 <i>marketing and management</i> journals.
Shilbury (2011b)	1987–2007 1992–2007 1998–2007 2001–2009	Identifies those journals dealing with sports management and management per se that are the most frequently cited in four sports management journals.
Ciomaga (2013)	1987–2010	Analyzes the evolution of research in sports management across three journals from the field.
Marfil and Valiente (2013)	2000–2010	Analyzes the literature on tourism in Catalonia, to identify the differences between tourism journals and journals pertaining to other disciplines such as geography.
Brandao et al. (2014)	1990–2013	Analyzes the scientific literature on internal tourism in international journals, recommending further research in this growing segment.
Evren and Kozak (2014)	2000–2010	Analyzes the evolution of the literature on Turkish tourism, based on 1217 papers from the country's leading journals.
Koc and Boz (2014)	2003–2012	Analyzes the use of triangulation as a research method in three leading tourism journals.
Koseoglu et al. (2015)	1984–2013	Analyzes research on Hospitality and Tourism in Turkey, based on 135 articles from 14 leading international journals on Hospitality and Tourism.
Lindahl et al. (2015)	2008–2011	Examines the evolution in research dealing with sports and exercise psychology, based on articles from five journals on sports and exercise psychology.
Pérez-Gutiérrez et al. (2015)	1989–2013	Analyzes the scientific literature on taekwondo, derived from the main WoS databases.
Ortega et al. (2015)	2004–2005 2010–2011	Takes 333 doctoral theses on sport, to analyze the role of women in this area.
Ruhanen et al. (2015)	1987–2012	Analyzes the evolution of the articles published on the topic of sustainable tourism.
García-Lillo et al. (2016)	2008–2014	Analyzes the Hospitality Management literature—specifically, the <i>International Journal of Hospitality Management</i> .
Koseoglu et al. (2016b)	1995–2014	Analyzes the evolution of research on business ethics in Hospitality and Tourism.
Koseoglu et al. (2016a)	1988–2015	Evaluates the bibliometric studies in the Tourism field. Concludes that these began to proliferate in 2008, and that there are more systematic reviews than bibliometric studies.
Jiménez-Caballero and Polo-Molina (2017)	1995–2012	Analyzes the research on financial issues such as value-creation or capital structuring in Tourism.
Avila-Robinson and Wakabayashi (2018)	2005–2016	Explores the structure and connections of the growing research field of destination management and marketing (Destination Marketing Matrix, DMM).
Caravaca et al. (2018)	2007–2017	Analyzes the research trends in judo as a fighting sport.
Cheng et al. (2018)	1992–2014	Provides an integrated review of the Western academic literature on adventure tourism.
Del Río-Rama et al. (2018)	1929–2016 1938–2016	Analyzes the scientific evolution of thermalism, spas and thalassotherapy in the tourism context.
Güzeller and Celiker (2018)	2007–2016	Analyzes the trends in the literature on tourism published in five of the most important journals of the sector, according to the JCR, plus a further 213 studies derived from Turkey.
Harker and Saffer (2018)	1990–2015	Explores the development and diffusion of academic studies dealing with crisis communication in the sports sphere, as a specific sub-field of communication.
Mulet-Forteza et al. (2018)	1992–2017	Analyzes all publications of the <i>Journal of Travel and Tourism Marketing</i> , from its first edition onward.
Okumus et al., (2018b)	1976–2016	Examines the evolution of research on food and gastronomy in Hospitality and Tourism.
Strandberg et al. (2018)	2000–2014	Analyzes the evolution of research in the journal <i>Tourism and Hospitality Research</i> and presents key trends.
Xu and Wu (2018) ^a	2006–2015	Analyzes the netnographic research on tourism conducted in the period under study.

^a Article; book chapter.

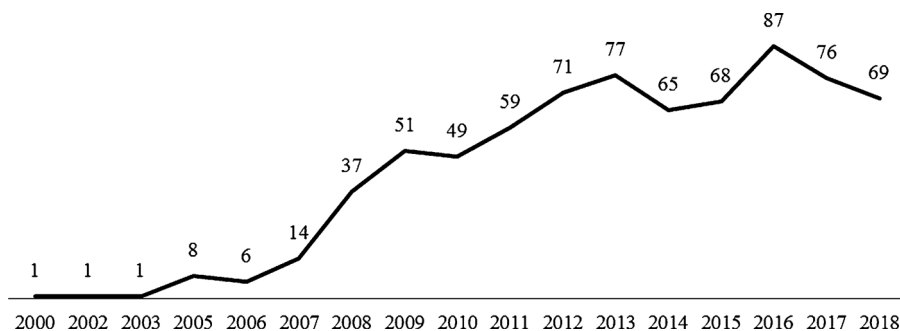


Fig. 1. Evolution in the number of publications (2000–2018).

Source: Own elaborate.

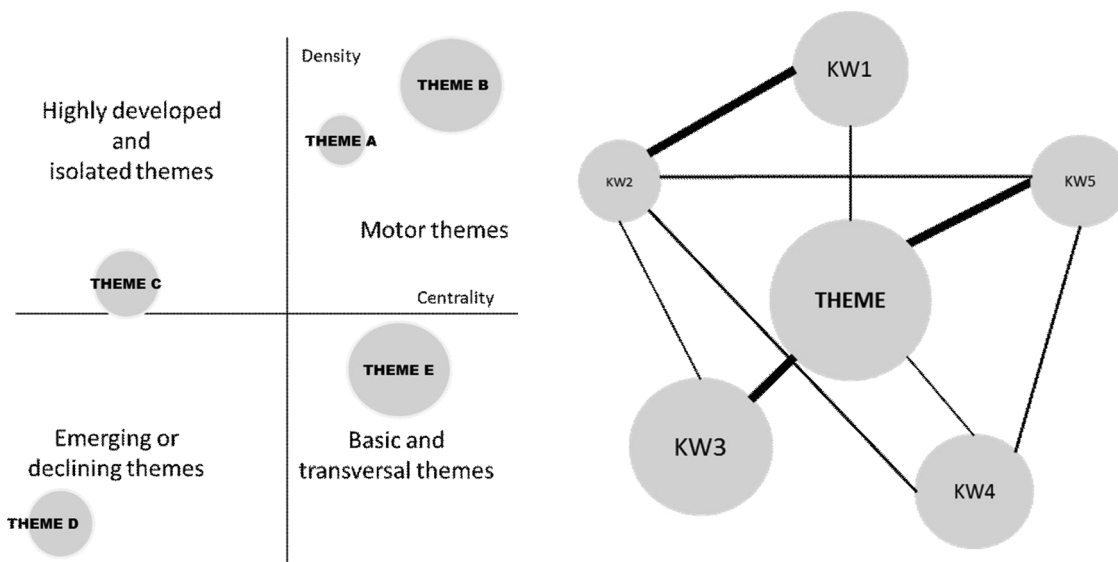


Fig. 2. Example of strategic diagram and thematic network. Source: Own elaborate.

4.2. Analytical tools used

For the performance analysis, we used the *WoS Analyze Results* tool. For content analysis, we used the *SciMAT* tool (Cobo et al., 2012) to produce science maps based on co-occurrence of keywords. The period of study was divided into two decades for the content analysis: 2000–2009 and 2010–2018. These can be defined as an incipient period (with 117 publications) and a growth period (623 publications), respectively. Previously, we had performed the normalization procedure on the keywords while maintaining their original meaning. Finally, a total of 1663 keywords were analyzed. The H-Index (Hirsch, 2005) and the total number of citations for each published document were selected as quality measures.

SciMAT provided the strategic diagrams, enabling us to identify the importance of each theme according to two measures: centrality and density. Centrality measures the degree of interaction of a network with other networks; and density measures the internal strength of the network or keywords that describe the theme. In the strategic diagram, the thematic networks are represented according to the two measures, which position them in a two-dimensional space divided into four quadrants (see Fig. 2). According to Cobo et al. (2012), the upper-right-hand quadrant contains themes that are important to the construction of the scientific field, which are known as “motor themes”. The themes positioned in the upper-left-hand quadrant are well developed internally, these being specialist—and very peripheral—subjects. In the lower-left-hand quadrant, we find underdeveloped subjects; that is, they are either emerging or declining. Finally, the lower-right-hand quadrant contains topics that, while significant for the scientific field, are not well developed. They are basic, transversal and generic subjects. Meanwhile, the thematic network analyzes the interrelationships between the thematic areas reflected in the strategic diagram.

5. Results

5.1. Scientific performance

Of the total of 740 publications analyzed, 648 (87.33%) were scientific papers; 59 were conferences proceedings; 23 were book chapters; 17 were article reviews; 8 were editorial materials; 5 were book reviews; and 3 were corrections.

The 740 publications corresponded to 1162 authors, of whom 290 (24.95% of the total) had two or more papers published in this

Table 2

Top ten authors mentioned, by number of documents. Source: Own elaboration. The researchers have selected only those authors with a frequency of documents greater than 10.

Author (University)	Ranking by number of documents
Lee, S. (Pennsylvania State University, USA)	42
Jang, S. (Purdue University, USA)	32
Hyun, S.S. (Hanyang University, South Korea)	18
Han, H. (Sejong University, South Korea)	17
Hwang, J. (Sejong University, South Korea)	14
Kim, W.G. (Florida State University, USA)	13
Line, N.D. (Florida State University, USA)	12
DiPietro, R.B. (University of South Carolina, USA)	11
Jin, N. (George Mason University, USA)	11
Kim, W. (Dong-A University, South Korea)	11

database. Table 2 shows the 10 researchers with the highest output in the field of restaurants in the hospitality and tourism context, some of whom are particularly notable for their large number of publications: S. Lee (Pennsylvania State University), with 42 publications; S. Jang S (Purdue University), with 32 publications; and S.S. Hyun (Hanyang

Table 3

Top ten sources by number of documents. Source: Own elaboration. The researchers selected only those sources with a frequency greater than 10.

Sources	Ranking by number of documents
International Journal of Hospitality Management	196
International Journal of Contemporary Hospitality Management	84
Cornell Hospitality Quarterly	44
Journal of Hospitality Marketing and Management	40
Journal of Hospitality and Tourism Research	40
International Journal of Hospitality and Tourism Administration	32
Journal of Quality Assurance in Hospitality Tourism	27
Tourism Management	17
Tourism Economics	16
Hospitality and Tourism: Synergizing Creativity and Innovation in Research	13

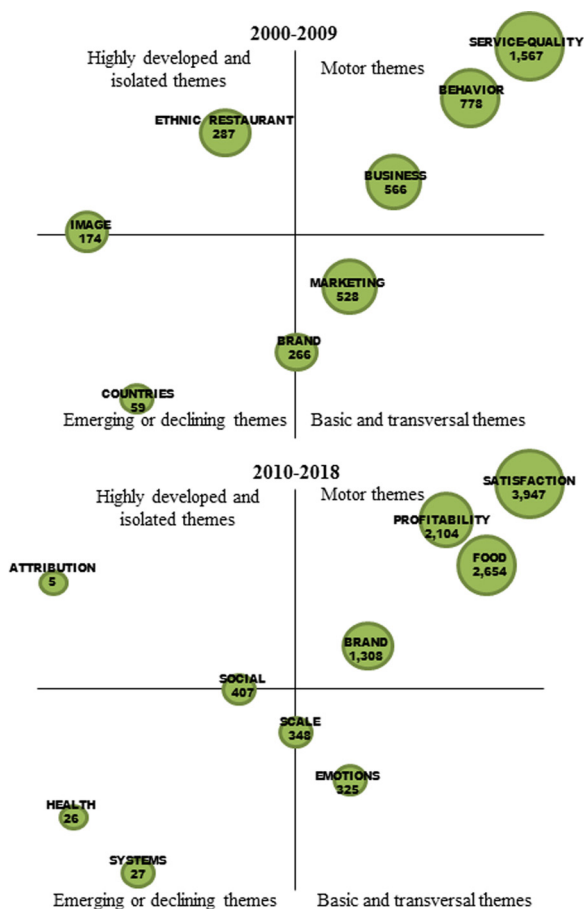


Fig. 3. Strategic diagrams for the periods 2000–2009 and 2010–2018 (citations). Source: Own elaboration based on SciMAT results.

University), with 18.

The 740 scientific documents analyzed were published in 102 publications, most notably the *International Journal of Hospitality Management* (196 articles), followed by *International Journal of Contemporary Hospitality Management* (84) and *Cornell Hospitality Quarterly* (44) (see Table 3).

5.2. Content analysis

Data analysis of the 1663 keywords using SciMAT software provided a total of 85 groupings of words across the two timeframes analyzed, as described next.

5.2.1. The incipient period (2000–2009)

Research in this period was found to be distributed across eight major themes, including, notably: service quality; behavior; business; marketing; and ethnic restaurants (see Fig. 3). The performance measures show that the motor theme in this period with the greatest impact was *service quality* (1567 and H-index = 19, see Table 4), approached mainly from two points of view: service-quality models and customer perceptions. *Behavior* was also found to be a driving theme that, while attracting fewer publications than *business*, received a greater number of citations. This phenomenon translates into a shift in the interest of researchers during this period, from the management perspective to the customer perspective.

Meanwhile, *business* was another motor theme, studied from the management perspective, dealing with restaurant type, business organization and human resources.

Ethnic restaurants constituted an internally well-developed, albeit

Table 4 Performance of themes in the periods 2000–2009 and 2010–2018. Source: Own elaboration based on SciMAT results.

	Theme	Ranking by number of documents	Number of citations	h-Index
Period 2000–2009	Service quality	33	1567	19
	Behavior	14	778	13
	Business	28	566	15
	Marketing	16	528	10
	Ethnic restaurants	9	287	7
	Brand	3	266	3
	Image	1	174	1
Period 2010–2018	Country	6	59	5
	Satisfaction	311	3,947	32
	Profitability	227	2,104	21
	Food	221	2,654	26
	Brand	76	1,308	21
	Social	44	407	9
	Scale	28	348	10
	Emotions	22	325	11
	Systems	3	27	2
	Health	2	26	2
	Attribution	1	5	1

peripheral, theme. It was researched from a range of perspectives, including tourist culture, and attributes such as price, food and authenticity.

Marketing was a major topic in this scientific field, but it was found not to be well developed. Rather, it constitutes a transversal and generic topic that, during this period, was studied only from the point of view of the product and, to a lesser extent, in the advertising context, followed by tourism. The position of the *brand* theme is particularly striking. This appears to have emerged as an incipient topic, later becoming a significant issue with the potential for development. The *brand* theme was studied during this timeframe from a financial point of view. Brand attitudes were studied only superficially in this period.

The topic presenting the least centrality, which was therefore largely unrelated to other issues studied, was that of *image*. This was addressed only for the purpose of studying the image of quick-service restaurants. The *countries* theme was an under-developed subject, which may be due to its being emerging or declining in its evolution. In this period, it was studied mainly from a social point of view.

5.2.2. The growth period (2010–2018)

The research conducted in this period is characterized by thematic diversification, and is distributed across ten major themes, in particular: satisfaction, profitability, food, brand, scale and emotions (see Fig. 3).

In this period, *Satisfaction* is the motor issue with the greatest impact on the three criteria observed: number of documents, number of citations, and H-index (see Table 4). Studies are divided into two areas: (i) *service quality* and *perceptions* and (ii) *behavior*, *intention* and *loyalty*. This demonstrates a clear interest among scholars in models based on the customer’s point of view during this period.

Profitability is the topic with the second-highest number of documents; yet *food*, while presenting a similar number of documents, presents a superior h-index and higher number of citations. A similar phenomenon can be seen in relation to *brand*, which, while presenting a much lower number of documents than *Profitability*, nevertheless achieves the same H-index. In this period, *profitability* presents as the evolution of the *business* topic from the previous period, which continues to develop in relation to themes linked to the economy and to management in the restaurant industry.

The *brand* theme, which had been an incipient topic—that is, important, but under-developed in the first period—is now a motor theme that has grown in terms of its interaction with more topics and in internal cohesion. It achieves a major impact, despite the relatively low

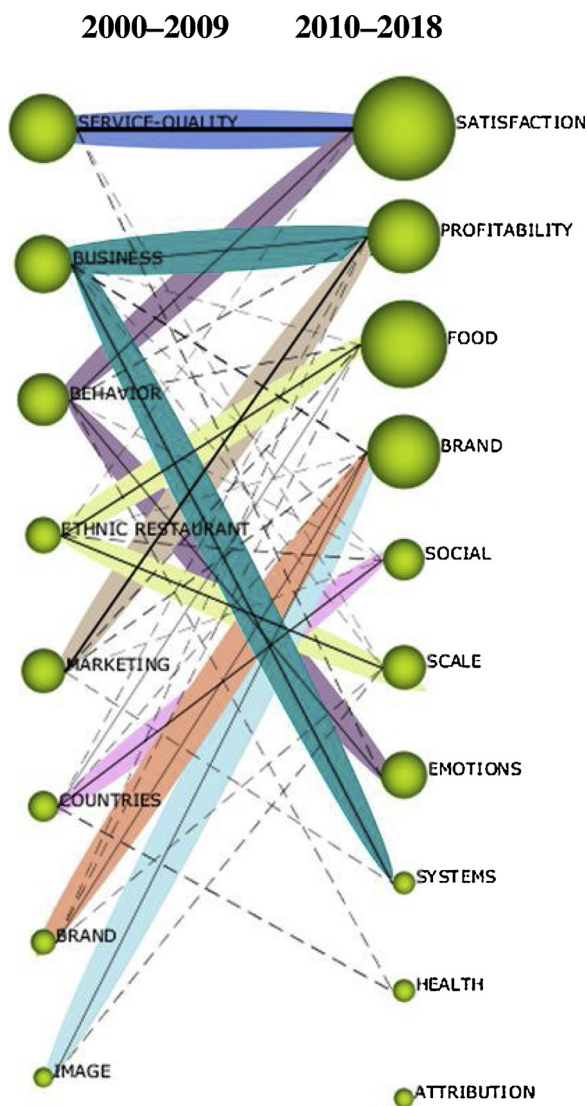


Fig. 4. Longitudinal evolution map. Source: Own elaboration based on SciMAT results.

number of documents published. Whereas, previously, it was mainly studied as an investment of the firm, in this period it starts to be researched from different points of view, such as the brand as a business asset and the commitment of the firm.

Scale is an incipient topic, again important but not widely developed, presenting weak relationships with other issues and little internal cohesion. This is also the case with the topic of emotions, which is a transversal and generic theme.

Systems and health are the subjects presenting the least internal cohesion. Their position suggests they are emerging or declining topics. The systems theme has been studied since the previous period in the areas of business and management, and in this period it interacts with only a few topics (such as organization and technology). Health is related to responsibility and therefore to the food safety policies implemented in restaurants—a topic that appeared in the previous period related to behavior, which may indicate that health is an emerging issue.

Attribution is an internally developed, specialist and peripheral topic with little impact. Finally, social is an isolated and underdeveloped topic that is mainly studied from a technological point of view: in the context of social media, eWOM, and websites.

5.3. Structural analysis of the evolution of research dealing with restaurants

As well as detecting the topics and analyzing them by periods, by using SciMAT it is possible to observe their evolution over time (see Fig. 4). We found that the thematic areas in which the research on restaurants in the tourism field is developing are: service quality, business, behavior, ethnic restaurants, marketing, countries, brand and image. In the most recent period, new themes emerged such as satisfaction, profitability, food, social, scale, emotions, system and health.

The solid lines in the figure indicate a thematic nexus based on the fact that both themes share the same name, or the name of one topic is part of the other. The dotted lines indicate that topics are related because they share keywords. The thickness of the lines is proportional to the inclusion index, and the size of the spheres is proportional to the number of publications pertaining to each topic (Murgado-Armenteros et al., 2015).

As can be seen in Fig. 4, the research conducted on restaurants does not present any great cohesion between the two periods. We can observe that most of the issues detected are not grouped together under themes that appear in the previous period. In fact, only one thematic area is present in the two study periods: Brand.

The main findings of the structural evolution analysis are as follows:

Satisfaction: This began as an issue associated with perceived service quality, but in the second period it was found to be the primary motor theme, with the greatest impact. It continues to be associated with service quality (as an antecedent) and other variables such as perceptions, atmosphere, intention and loyalty.

Business: This is the second major thrust of the research, encompassing all the studies relating to the management of different types of restaurant. In the second period it accounts for almost 30% of the publications, dealing with the core topic of profitability, together with industry and marketing.

Behavior: This is a core theme, of importance from the very outset, presenting a high degree of cohesion and strong interaction with other topics, such as emotions and experience. It has been studied in parallel with customer satisfaction, as reflected by the large number of publications on behavioral and satisfaction models. While the theme of emotions was closely related to behavior in the first period, in the second it is now positioned as an under-developed topic.

Ethnic restaurant: This is a well-developed but isolated theme in the first period, in which aspects of behavior such as restaurant loyalty or WOM, and perceptions such as authenticity—a concept that appeared only superficially—were already reflected. In the second period, the direction taken by the research on this topic focuses on food, which is positioned as a motor theme, attracting 35% of the documents published in this period.

Marketing: In the first period, marketing was a little-developed and cross-sectional topic, which was studied mainly in terms of the product, and only marginally in the context of advertising. However, in the second period, we can appreciate the clear consolidation of the marketing theme in the context of profitability.

Countries: This was an emerging theme in the first period; and in the second, the topic is approached from the social perspective (with the greatest number of publications). That said, it still presents limited cohesion due to its weak interactions with themes from two different disciplines (social networks, for example, vs. food, restaurants and tourism).

Brand: This theme is shown to have little internal cohesion, due to the scant attention received in the first period. Over the years, brand has become a motor theme, presenting considerable growth in both internal cohesion and also interaction with topics such as brand value, image and advertising—especially in relation to restaurant chains and luxury restaurants.

Image: This was an isolated theme, almost entirely overlooked, in the first period, when it was only considered of interest in the context of the quick-service restaurant. By contrast, in the second period it is one

of the topics with the highest degree of interaction with *brand* in the context of restaurants. They converge together in the shift from one decade to the next.

Attribution: This is a completely isolated topic that did not follow an evolutionary path. Rather, it appears directly in the second period.

6. Main conclusions

It was found that the first decade analyzed in the study witnessed a change of direction in scholarly interest in the field of restaurants, from a supply-orientated to a customer-orientated perspective. This latter focus was concerned with customers' expectations, satisfaction and behavior. This shift was due to the fact, in the late 1990s, there was a major push toward in-depth research on service quality models (Grönroos, 1984; Parasuraman et al., 1985), as well as the definition and measurement of service quality, specifically in the restaurant context (Stevens et al., 1995). The next step in this evolution was the application of models that helped explain how the measurement instruments helped predict variables such as customer satisfaction or behavior (Lee et al., 2005).

In particular, the present study discovered that the theme of *satisfaction* is the primary motor issue with the greatest impact, and that interest in the effect that restaurant elements exert on satisfaction is important. In this regard, the output of the authors S.S. Hyun, H. Han and J. Hwang is of particular note. Their findings are framed within the last decade, which is characterized by customer focus. Some examples of their most relevant works are those dealing with the analysis of the effect of food quality, service, and physical environment on customer satisfaction and intention (Han and Hyun, 2017; Ryu and Han, 2010). Other relevant topics covered by these authors include their study of the influence of customer emotions on their satisfaction and intentions (Han et al., 2009), and the analysis of customer responses to restaurant online advertising and their relationship to customer attitudes and intention (Hwang et al., 2011).

Furthermore, these authors center their research on different types of restaurants. For example, Ryu et al. (2008) examined the effect of restaurant image on perceived value and customer satisfaction in the case of quick-casual restaurants. Ryu et al. (2010) examined the relationship between the customer's hedonic and utilitarian value and their satisfaction and repeat intention in the case of fast-casual restaurants. Elsewhere, Hyun (2010) focused on the attributes of food quality, service quality, price, location and environment in restaurant chains. Finally, the study of Hwang et al. (2011) is notable for its analysis of the influence of online advertising on brand attitudes and behavioral intention in casual-dining restaurants; and the study of Hwang and Hyun (2012) on antecedents and consequences of brand prestige in luxury restaurants is also worthy of special mention.

Just as the topic of dining experience was becoming more prominent in the literature, the concept of perceived authenticity emerged as the 'recipe for success' in the construction of ethnic-themed restaurants (Muñoz and Wood, 2009) and as a form of business strategy that was entirely contrary to the standardization that appeared just three years later (Zeng et al., 2012). In general terms, there is little scientific output on authenticity in our chosen period and area of study (Liu et al., 2018).

Meanwhile, as observed earlier, there has been a growing interest in the emotions of the customer, this becoming established as a basic and generic topic in which there is still much mileage in research terms. The studies frequently analyze how the customer's emotions are affected by: restaurant atmosphere; customer-employee interaction (Lin and Mattila, 2010); and service failures (Mattila and Ro, 2008). Other authors have used the 1974 stimulus-organism-response model (Chen et al., 2015), or virtual reality simulation to analyze emotions in an experimental restaurant (Hwang et al., 2012). The most recent studies looking at customer emotions are those of Kim and Stepchenkova (2018) and Ouyang et al. (2018). The latter authors investigated the effects of aromas on emotions, in an experimental study.

At the beginning of the period under study, we find a certain interest in brand equity (Kim and Kim, 2005). At the same time, the research starts to adopt more of the customer's perspective and an interest in understanding the quality of the customer's relationship with the brand (Ekinci et al., 2005). There have been various studies that approach the measurement of brand equity in the restaurant context during the last ten years (Lu et al., 2015; Pham et al., 2016). Thus, the Customer-Based Brand Equity Model (Aaker, 1991; Keller, 1993), which holds that a brand with high brand capital will generate a more favorable customer response to marketing efforts, has been applied in the restaurant field. Furthermore, in recent years a customer-based brand equity measurement scale was created especially for restaurant chains (Han et al., 2015). However, most studies dealing with brand equity focus on very specific restaurant types, such as restaurant chains (Hyun, 2009; Kim and Kim, 2005), ethnic restaurants (Lu et al., 2015) and fast food (Tan et al., 2015).

The advances in hospitality research related to the use of *technology* in restaurants have been growing from the second period onward. On the one hand, technology features in the design of the research itself, such as the use of virtual reality (VR) technology to represent real environments in the waiting area of a restaurant, with the aim of analyzing their effect on customer response (Hwang et al., 2012), or the use of online opinion platforms (such as TripAdvisor) to analyze large amounts of data about the customer experience in the restaurant (Cechinel and Santos, 2018; Gan et al., 2017; Ganzaroli et al., 2017; Zhang et al., 2017).

On the other hand, technology has built a significant profile as a central research topic from the point of view of management. Here the work of Ottenbacher and Harrington (2009) stands out in particular. Their study compares the innovation models of quick-service restaurants with earlier models, based on interviews with restaurant-chain executives. Regarding the interest in technological issues from the customer's point of view, the following contributions are particularly significant: studies on the effect of self-service technology (SST) on consumer behavior (Hanks et al., 2016); the effect of Interactive Restaurant Self-service Technology (IRSST) on customer response (Ahn and Seo, 2018); the impact of previous experience on the probability of using the kiosk at a quick-service restaurant (Kim et al., 2013a,b); the use of smartphone-compatible apps to order restaurant food (Okumus et al., 2018a); and the development of a multidimensional scale to measure Customer Perceptions of Restaurant Innovativeness (CPRI) (Kim et al., 2018).

Finally, *health* is also a priority area for further research in the context of restaurants and tourism. This field began by addressing the scholarly interest in the satisfaction of customers concerned with low-fat eating in restaurants (Jun et al., 2014). The research later analyzed perceptions of reliability of the nutritional information provided on menus (Lee et al., 2015), attitudes toward menus, and restaurant sustainability (Lo et al., 2017).

7. Implications for academic research

Although the restaurant world, and all the activities associated with it, have witnessed significant growth over time, the number of publications on this subject in other disciplines—such as management, sociology, or business—is very small, at 200, 54 and 47 publications, respectively, over a period of almost 20 years. This is a particularly interesting feature that reveals possibilities for cross-collaboration between institutions and researchers as opportunities to advance the research more broadly. As noted by Okumus et al. (2018b), collaboration between different disciplines helps increase scientific output by offering fresh alternatives to the long-standing research problems associated with a single discipline—thus providing improved results and greater prestige.

On the other hand, it is a reality in academia that those journals that enjoy the highest profile in a given discipline set research trends and

provide rigor to the various associated research strands (Oh and Kim, 2017; Prayag et al., 2019). For our study, we drew on what is considered to be the most prestigious database in the world: WoS. This includes the most highly-respected journals in the Hospitality, Leisure, Sport, and Tourism category. Thus, our results show how the top journals in this field are those with the most publications in the field of restaurants: *International Journal of Hospitality Management*, *International Journal of Contemporary Hospitality Management* and *Cornell Hospitality Quarterly*. These journals hold the lead in terms of publications in the field of hospitality, and are therefore usually referred-to as the “top hospitality journals” (Li et al., 2017; Prayag et al., 2019).

As regards the topics on which researchers should focus their efforts, several strands are identified: from a marketing perspective, issues related to the product and communication; from the client perspective, topics related to culture and emotions; from a strategic point of view, the measurement of brand value; from the innovation perspective, the focus on specific recent phenomena and on new emerging technologies; and, from a methodological perspective, the use of alternative means of gathering and processing information. Each of these practical implications is explained next.

As regards the product (comprising both the food and the restaurant), worthy of special mention is a variable that is particularly attributable in the case of tourism: authenticity. This is a topic deserving of more in-depth research, as it is intimately related to external (tourist) perceptions of an event. This line of research is portrayed in a recent systematic review of authenticity, conducted by Le et al. (2019), in which the possible suggested directions for covering this gap are set out. Together with culture, and with the various different restaurant segments, authenticity is primed as a line of research to be developed.

There are few studies in the period under analysis dealing with communication, but those that do exist have been very well received, generating significant interest among researchers (Kwok and Yu, 2013; Kwok et al., 2015; Park et al., 2016). The limited amount of research on this topic, coupled with the fact that *digital* is an under-developed and emerging theme, indicates that restaurants’ social-media-based communication strategies will be an interesting field to investigate, alongside analysis of communication via social networks and analysis of thinking and emotions (Wang et al., 2019; Zhang and Hanks, 2018).

In terms of conclusions related to culture, we can regard this as an area ripe for in-depth research, as it is inherent to tourism. This fact, together with the clear scholarly interest in the profile of the client and their behavior, and the virtually non-existent attention paid to the cultural-dimensions framework devised by Hofstede (1980) in the area that concerns us, suggests there is a significant opportunity for research into the culture of the customer, positioned within the aforementioned cultural framework.

As most brand equity studies focus on very specific types of restaurant, classifications capturing the wide diversity of restaurant formats can be usefully exploited (see, for example, the classification of the National Restaurant Association—Canziani et al., 2016). In this regard, it would be of value to continue researching the differences in the formation of brand equity, to enable recommendations for each type of restaurant to be made regarding this construct.

From the point of view of innovation, researchers should address new aspects and focus their attention on new technologies. Some of those aspects approached superficially to date are, for example: governmental issues that affect the restaurant sector (Madanoglu et al., 2018); relatively recent phenomena such as the eco-friendly movement (Hornig et al., 2013; Kim et al., 2013a,b); or what is known as the “hyper-local” phenomenon, referring to the restaurateurs who operate their own farmsteads or gardens, from which they derive their supplies of fresh produce (De Chabert-Rios and Deale, 2016). The latter phenomenon is closely related to sustainability and to company performance analysis based on environmental certification (Bristow and Jenkins, 2018; Chou et al., 2018; Higgins-Desbiolles et al., 2019). Elsewhere, the generalized concern for healthy eating, coupled with

sustainable behavior, points to a customer profile susceptible to analysis in the restaurant context. However, there is limited research on restaurants specializing in organic dining (Poulston and Yiu, 2011), which points to an opportunity for research into this topic.

The future of restaurant research should be approached from perspectives that center on innovation and on the maximum benefit of information and communication technologies (Daries et al., 2018), which points to various alternative research directions. One key perspective is the design, implementation and analysis of high-performance management systems (HPMS) for restaurant employees (Murphy and Olsen, 2009). Further, in light of the warm reception of the work of Zhang et al. (2017), we recommend the analysis of online opinion systems, both in terms of design and management and from the perspective of restaurant marketing managers, who can benefit from the valuable information generated by such system. We also recommend that, in tandem with the research dealing with the development of management technologies, the recent focus on how clients adapt to such innovations be continued. Of particular interest is the analysis of clients’ technology use (Okumus et al., 2018a), client perceptions of innovations (Kim et al., 2018), and the wide scope of research dealing with the use of kiosks in restaurants and self-service technology more generally (Ahn and Seo, 2018).

Such aspects of interactivity in the restaurant context have indeed very recently begun to be addressed. Here, therefore, the particular recommendation for the future is to build on this early work, as it holds much promise as a highly original topic in hospitality research (Alsetoohy et al., 2019; Buhalis et al., 2019).

With regard to methodologies, our findings suggest that most restaurant studies were conducted using quantitative methods. However, in the specific case of restaurants, we observed progress in terms of methodological procedures that draw on the current range of technologies available in this area. The fact that the restaurant field enjoys technological and communications resources such as opinion platforms has led to a proliferation of qualitative studies based on content analysis (Cechinel and Santos, 2018). In this sense, the development of *netnographic* studies is also of interest, since only two such publications were produced during the period under study, but with great acceptance (Mkono, 2012; 2013). This type of research would also enable deeper investigation into the eWOM phenomenon and consumers’ browsing experience of restaurant websites, there being very few works addressing these topics.

Of particular note is the paucity of research that uses technologies from the neurosciences and compares its results with those regarding the emotional responses of the customer, measured via questionnaires. These methods have already been applied in the tourism field, in general (Bastiaansen et al., 2018), although they are still rarely found in this field of study. As Lee et al. (2017) note, the blend of marketing, hospitality and neuroscience has tremendous potential to generate valuable contributions to knowledge. For example, a recent study by Muñoz-Leiva and Gómez-Carmona (2019), which used functional magnetic resonance imaging (fMRI), demonstrated that good presentation of dishes in a restaurant (as opposed to poor presentation), together with the use of organic ingredients (as opposed to non-organic), activates different areas of the brain with a high affective or cognitive component. Furthermore, taking this approach, based on consumer neuroscience methodologies, customers’ responses to textures, lighting, decoration, arrangement of tables and chairs, music, and temperature can be identified.

Acknowledgements

The authors appreciate the financial help provided via a research project of group ADEMAR (University of Granada) under the auspices of the Spanish National Research Programme (R+D+i Research Project ECO2017-88458-R), and Research Program from the Faculty of Education, Economy and Technology of Ceuta.

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