Bibliometrics of social media research: A co-citation and co-word analysis

Xi Y. Leung [a,*], Jie Sun [b], Billy Bai [b]

[a] Department of Hospitality and Tourism Management, University of North Texas, 1155 Union Circle #311100, Denton, TX 76203, USA
[b] William F. Harrah College of Hotel Administration, University of Nevada, Las Vegas, 4505 Maryland Parkway, Las Vegas, NV 89154, USA

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ABSTRACT

This study combined two bibliometric analysis methods to provide a systematic and holistic review of social media-related academic literature. A total of 406 publications related to social media between 2007 and 2016 were identified from 16 business and hospitality/tourism journals. Co-citation analysis identified Word-of-Mouth as the major theoretical foundation of social media research in business, while the hospitality/tourism field presented a diverse theoretical foundation. The study then employed co-word analysis to identify the evolution of research themes over time in both fields. The comparison of social media research between the two fields highlighted four similarities, including the growth of research over time, the term "social media" gaining popularity, the new trend of social networking sites, and managerial applications as research focus. Finally, the study called for a future research agenda on social media research in the hospitality/tourism field.

1. Introduction

Coined in the late 1990s, "social media" have become ubiquitous nowadays with over 2 billion active users worldwide (Number, 2016). By definition, social media are computer-mediated technologies that facilitate the creation and sharing of information, ideas, and other forms of expression via virtual communities and networks (Obar and Wildman, 2015). Social media connect everybody in previously unimaginable ways and thus have transformed communication between businesses and customers (Kietzmann et al., 2011).

The hospitality and tourism industry relies heavily on word of mouth among customers, which has grown exponentially on social media. Social media play an increasingly important role in customer information search and decision-making behaviors (Fotis et al., 2012). Advantages of social media include its global reach, immediacy, easy accessibility, and versatility for interactive exchanges (Khan, 2012). Moreover, social media also allow hospitality and tourism companies to engage online customers, improve online presence, and generate online revenues (Leung et al., 2013). Thus,

it has become a business imperative for hospitality and tourism companies to embrace social media.

With the increasing importance of social media, a plethora of research on the application of social media in hospitality and tourism has emerged in the last decade (Leung et al., 2013; Zeng and Gerritsen, 2014). As a relatively new phenomenon, it is beneficial for academic scholars to regularly review prior relevant research so as to gain an overall view of the intellectual structure of this field and to predict how the field might move forward (De Bakker et al., 2005; Line and Runyan, 2012). Due to the qualitative and subjective nature of the previous literature review studies on social media in hospitality and tourism (Leung et al., 2013; Zeng and Gerritsen, 2014), quantitative research of literature review will facilitate deeper insight into this area and reveal the focus of previous studies over the years and the relationships among them (Muñoz-Leiva et al., 2015).

Bibliometrics is a form of statistical analysis of publications that provides quantitative insight into academic literature (Benckendorff and Zehrer, 2013; De Bellis, 2009). Bibliometric analysis provides insight into the growth of literature and the flow of knowledge within a specified field over a period of time by analyzing information gathered in the database, such as citations, authors, keywords, or the range of journals consulted (Van Raan, 2005). Based on which information it uses in analysis, bibliometrics includes different methods, such as citation analysis,

* Corresponding author.
E-mail addresses: xi.leung@unt.edu (X.Y. Leung), sunj8@unlv.nevada.edu (J. Sun), billy.bai@unlv.edu (B. Bai).

co-citation analysis, and bibliographic coupling using citations (De Bellis, 2009), and co-word analysis using keywords (He, 1999).

With the help of bibliometrics, the present study aims to fulfill a research gap by carrying out a systematic and quantitative analysis of social media literature in top business journals and hospitality and tourism journals. The study applies a bibliometric approach combining co-citation analysis with co-word analysis to reveal and visualize the big picture and evolution of this research area. Specifically, this study intends to achieve the following objectives: 1) to explore the overall theoretical foundation of social media research in both the business and hospitality/tourism fields using co-citation analysis; 2) to identify the research themes and thematic evolution of social media research in both the business and hospitality/tourism fields over a ten-year period by co-word analysis; 3) to reveal similarities and differences in social media research between the two fields; and 4) to suggest directions for future social media research in the hospitality/tourism field.

2. Literature review

2.1. Social media review research

The emergence of social media has changed consumer consumption habits of looking for, assessing, choosing, and buying products and services (Albors et al., 2008). Thus, marketers have been presented with new challenges and difficulties in marketing strategies, practices, and tactics in the social media era (Thomas, 2007). Two literature review articles summarized the research focuses of social media research in the business field. Alves et al. (2016) analyzed 44 articles on social media marketing published between 2010 and 2015 and identified two distinct research perspectives; whereas some considered consumers' perspectives of usage, share, and decision making, other examined companies' perspectives of implementation, optimization, and measurement of results. Knoll (2016) reviewed 51 academic papers on the topic of social media advertising and described seven emerging themes: usage, attitudes, targeting, user-generated content, electronic word-of-mouth, consumer-generated advertising, and further advertising effects. In relation to social media, researchers also conducted literature reviews on electronic word of mouth (eWOM). To compare eWOM with WOM and provide marketers with best practice suggestions, Barreto (2014) evaluated 88 papers and books on the topic of WOM and eWOM published between 1955 and 2011. Similarly, Mishra and Satish (2016) systematically examined all eWOM articles in the last 10 years of publication and proposed theoretical foundations of eWOM research from the social, information, and marketing fields. In the hospitality and tourism fields, Chen and Law (2016) evaluated 43 articles on the topic of eWOM from 2008 to 2013 and identified the three dimensions of eWOM research as the characteristics, antecedents, and impacts.

Two extensive literature reviews have examined social media research in the hospitality and tourism fields. Leung et al. (2013) reviewed 44 social media-related articles published in the hospitality and tourism fields between 2007 and 2011. Their study indicated that social media research generally paid more attention to suppliers' applications, including promotion, management, and research functions. From the consumer point of view, the majority of research have been focused on the use and impact of social media on the travel planning process (Leung et al., 2013). To update Leung et al.'s (2013) research, Zeng and Gerritsen (2014) applied bibliometric analysis to examine 279 publications regarding social media in tourism published from 2007 to 2013. In line with Leung et al.'s (2013) findings, Zeng and Gerritsen (2014) stated that social media-related studies mainly focused on topics such as marketing,

management, tourist behaviors, and information creation and sharing. They also indicated that research on social media in tourism is still in its infancy.

2.2. Bibliometric analysis

The term bibliometrics was first introduced by Pritchard (1969) as "the application of mathematical and statistical methods to books and other means of communication" (p. 349). Bibliometrics use quantitative analysis of empirical data in published literature to study the patterns of publication within a field (De Bellis, 2009). Thus, the use of bibliometrics enables researchers to examine the body of literature in their area of study in order to identify major themes (Grant et al., 2000; Vogel and Güttel, 2013). Bibliometric analysis is often combined with science mapping techniques to visualize the intellectual structure of a particular research field (Cobo et al., 2011). Bibliometrics consist of various analysis methods depending on different types of information used in the analyses (Van Raan, 2005). The most common ones are citation-based analysis, co-word analysis or keyword co-occurrence analysis, and co-authorship analysis (Van Eck and Waltman, 2014). Within citation-based analysis, a further classification includes citation analysis, co-citation analysis, and bibliographic coupling (Van Eck and Waltman, 2014).

Co-citation analysis is the most commonly used bibliometric analysis method (Ding et al., 2001). Co-citation is defined as two publications which are cited together in one article (Small, 1973). When two publications are frequently co-cited by the other articles, it is very likely that these two references have something in common (Benckendorff and Zehrer, 2013). As an advanced bibliographic technique (Köseoglu et al., 2015), co-citation analysis is used to discover the clusters of co-citation pairs, which enable scholars to obtain insights for the cumulative tradition, knowledge base, and intellectual structure of scientific research (Small, 1978; Culnan, 1986; Pasadeos et al., 1998).

Although co-citation analysis has been claimed to be superior in displaying disciplinary structures to other bibliometric methods (Bichteler and Eaton, 1980; Chang et al., 2015), it is not able to provide a content picture of the research topics dealt with in the literature. Co-word analysis, on the other hand, was developed to address this kind of analytical problem (Callon et al., 1991). Co-word analysis is based on the frequency of co-occurrence of keywords, that is, the number of papers in which two keywords appear together (Whittaker, 1989). By measuring the strengths of the keyword co-occurrence links, co-word analysis reveals and visualizes the interactions between keywords (Callon et al., 1991; Su and Lee, 2010). Since keywords are the terms used to verbalize the core of a research article, co-word analysis is often used to explore the concept network of research topics and trends in a specific discipline (Callon et al., 1991; Ding et al., 2001). However, co-word analysis also has its weakness in stability due to term changes over time (Leydesdorff, 1997; Åström, 2002).

Since different bibliometric analysis methods all have strengths and weaknesses, combining various methods to explore research trends in a certain discipline has become a trend in bibliometrics (Chang et al., 2015). Previous studies using a combination of co-citation and co-word analyses indicated complimentary roles of the two analyses (Braam et al., 1991a,b). After employing both co-citation analysis and co-word analysis in a literature review study, Åström, 2002 also indicated that the overlap of the two methods was relatively small and the combination of the two methods provided better results. Similarly, Chang et al. (2015) suggested combining co-citation analysis with keyword analysis could not only create a comprehensive map of the intellectual structure of