Current issue in tourism

The evolution of the web and netnography in tourism: A systematic review

Rokhshad Tavakoli*, Sarah N.R. Wijesinghe

Faculty of Social Sciences and Leisure Management, Taylor's University, Malaysia, No. 1 Jalan Taylor's, Subang Jaya, Selangor Darul Ehsan 47500, Malaysia

A B S T R A C T

Despite recognition of an ever-growing number of Web users, there have been few attempts made to design new empirical material collection methods using various online platforms. Netnography is among the online qualitative methods to have received the least attention from tourism scholars. This systematic review gives an overview of the current gap in netnography studies in tourism that have been published in different disciplines. The findings of this study reveal that the majority of authors conduct their research on Web 2.0. Discussion of the current Web platforms in tourism and possible opportunities for conducting netnography studies are further considered. The contribution of this study is twofold. Firstly, it expands our knowledge of using information technology in tourism to conduct online studies in a general sense. Secondly, it increases our understanding of specific new methods for conducting netnographic studies.

1. Introduction

Ever since the advent of the internet, it has become increasingly important to analyse 'cybercultures'. To attend to this need, many approaches have been employed to try to gain some understanding of online cultures. Netnography, designed by Kozinets (1997) as a qualitative approach to studying online communities through an ethnographic lens, is one of these methods. Kozinets (2002) believes that netnography is less obtrusive and more naturalistic than traditional ethnographic methods. As a result, netnography provides information about consumers' patterns of online behaviour, which has proved popular among business scholars. Many scholars from various disciplines have acknowledged the importance of this methodology (Bartl, Kannan, & Stockinger, 2016; Bengry-Howell, Wiles, Nind, & Crow, 2011; Nind, Wiles, Bengry-Howell, & Crow, 2013). However, it has received less attention from tourism researchers.

The emergence of online communities has created new dimensions of cultural issues, which have a high influence on the decisions of different stakeholders. For instance, tourists, by sharing their experiences on social media platforms, give spontaneous views that can directly influence destination marketers and potential tourists. Cybercultures have merged with our daily lives, reinforcing traditional relationships among various actors in society. Online communities are one of the channels that contribute to the construction of cybercultures. They have increased the level of interaction among stakeholders from different sections of society, both nationally and internationally. Due to the rapid development of Web technology, interest in undertaking netnographic research has increased. The findings of a netnographic study can reveal hidden parts of cultures, experiences, desires and expectations. On these digital platforms, users can express themselves openly and unreservedly.

Although netnography was designed primarily as a tool for business studies researchers to understand consumer behaviour, the importance of employing this methodology is acknowledged by scholars across different disciplines (Bartle et al., 2016), and particularly in tourism studies (Tavakoli & Mura, 2018; Mkono & Markwell, 2015). In the systematic review of netnography conducted by Bartle, et al. (2016), which explored the phenomenon particularly in relation to the field of business, it is noted that the number of studies employing netnography has risen in recent years. A similar study by Mkono and Markwell (2014) on netnographic studies in tourism reveals that although netnography has been utilized by tourism scholars to a certain extent, it has not been fully realized. Researchers believe there are two main reasons for this: namely, tourism scholars' limited confidence and lack of awareness in utilizing netnography (Mkono & Markwell, 2015), and limited information technology knowledge (Tavakoli & Mura, 2018).

The majority of tourism netnography studies have been conducted on Web 1.0, Web 1.5 and Web 2.0 (websites, tourism blogs, and social media). Other platforms, using Web 3.0, Web 4.0 and Web 5.0 technologies, are rarely explored by netnographers. The diverse platforms designed beyond Web 2.0 could represent cyberspaces for tourists to share their experiences and emotions. As such, these tools could provide a great opportunity for the tourism industry to understand and accommodate customers' needs and desires. Moreover, applications that

---

* Corresponding author.
E-mail addresses: Rokhshad.tavakoli@taylors.edu.my (R. Tavakoli), Sarah.Wijesinghe@taylors.edu.my (S.N.R. Wijesinghe).

go beyond Web 2.0 (namely Web 3.0, Web 4.0 and Web 5.0) could provide contexts for more advanced and immersive forms of netnography than the ones currently in use based on Web 1.0 and Web 2.0.

To date, the systematic review conducted by Bartle, et al. (2016) remains the most comprehensive systematic review analysing netnography. However, the study by Bartle, et al. (2016) focuses particularly on business (i.e. business journals). Although a quarter of netnographic studies included in the review were tourism-related topics (published in business journals), the systematic review itself was not designed to analyse the progress of netnographic studies in the field of tourism. The review, therefore, does not take into account netnographic studies published in tourism, travel and/or hospitality journals. A further limitation of the study was the time period of 1997–2012, which, as the web evolves at a fast pace, raises an additional need for an up-to-date review on this matter. The research note by Mkono and Markwell (2015) further provides a particular understanding of netnographic studies in tourism. However, the process of the review was not systematic and the review included only 37 papers in total, which were found by using the search function in Google Scholar. The discussion itself is limited and lacks a comprehensive understanding of the phenomenon due to the shortage of data. Hence, we contend that a thorough understanding of netnographic practices in tourism and hospitality research is still lacking.

Based on these factors, this study was designed to investigate the current state of netnographic research in tourism. The present review attempts to address the aforementioned gaps in netnographic systematic reviews by discussing the advancement of existing internet platforms and the opportunities they provide for conducting netnography in tourism. This work consists of three main sections. In the first part, the researchers explain the evolution of the Web in the context of tourism. The second section projects a comprehensive analysis of existing netnographic studies in tourism. The third part provides suggestions for possible future studies on netnography in tourism. Furthermore, it casts light on different dimensions that researchers need to consider when employing netnography.

2. The evolution of the web and tourism

The development of the Internet has revolutionized human interaction. Early versions of the Internet, which were implemented in telecommunications, universities and research units in the US during the 1960s and 1970s, entered a new commercial phase in the 1980s (Cohen-Almagor, 2011). During the last two decades, the Internet has developed drastically and has exerted a major influence on our daily routines. Although the words 'Internet' and 'World Wide Web' (or Web, for short) are often used interchangeably, the two represent different concepts. The Internet is a decentralized global network that connects millions of computers together. There are various ways to connect to the Internet. The Web uses the Internet as a medium to share information by using 'Hypertext Transfer Protocol' (HTTP), which is one of the protocols or languages 'spoken' over the Internet (Fielding et al., 1999). The information may contain a mixture of text, images, audio and video which are accessed using Web pages
.

The Web is an information space accessible via the Internet, which has undergone many developments over the years. Web X.Y is the general phrase used to refer to the different stages of the Web, known as Web 0.5, 1.0, 1.5, 2.0, 2.5, 3.0, 3.5, 4.0 (Weber & Rech, 2010) and Web 5.0 (Patel, 2013). These version numbers represent the evolutionary steps of the Web from its inception to the present day.

Web 0.5 refers to the beginning of Web evolution in the late 1980s, when the technical infrastructure was being shaped and web protocols defined (Weber & Rech, 2010). Soon afterwards, Tim Burners-Lee introduced Web 1.0, known as a read-only Web. In this static version of the Web, interaction between developers and users was at a minimum (Patel, 2013). In Web 1.0, only web designers could provide and

manage the content of a website, and users were not able to contribute to the content (Patel, 2013). In the late 1990s, Web 1.5 was established when the Web entered into another phase of commercialization. During this period, the major players such as Microsoft, eBay and Amazon introduced their services. Designing Web pages became more complicated with the introduction of content management systems (CMS), which gave websites dynamic characteristics. Importantly, before Web 2.0 emerged, Web 1.0 and 1.5 were very popular among tourism-related website developers as a tool for promoting destinations. Many sectors in tourism and hospitality, such as hotels, still rely on them.

The next generation of the Web, Web 2.0, was introduced in 2004 by O'Reilly Media and became known as 'the social web' (Weber & Rech, 2010). It has a 'read-write web' characteristic, which is also referred to as 'wisdom web', 'people-centric web' and 'participative web' (Patel, 2013; p. 411). Web 2.0 provides opportunities to create new online communities and connect different existing ones. This allows both developers and consumers to contribute to the content of a website. In other words, Web 2.0 offers the opportunity to have 'peer to peer' interaction (Patel, 2013). Therefore, it is also known as participatory media or collaborative web (Patel, 2013). This characteristic has proved to be a valuable tool for both customers and providers in the tourism industry. Providers can gain easy and immediate access to feedback provided by users. Some typical examples of Web 2.0 are personal or corporate weblogs or blogs, podcasting (e.g., Lonely Planet), social networking (e.g. TravelTogether, TravelGirls), user-generated content (e.g., TripAdvisor) and online videos (e.g., YouTube and Travelistic). Moreover, Rich Site Summary or RSS (e.g., Expedia, which offers customers the opportunity to automatically receive new promotions via RSS), tagging (e.g. tagging options on Flickr), mash-ups and open application programming interfaces (e.g., the possibility of combining Google Maps with other applications) and wikis (e.g., Wikitravel) are all part of Web 2.0.

During the last decade, the drastic increase in usage of mobile phones and smart devices has added greatly to the evolution of the Web (Pileggi, Fernandez-Llatas, & Traver, 2012). The mobile web, which is known as Web 2.5, has captured the attention of developers and businesses owners. Mobile applications give users the opportunity to access platforms at any time from any web-connected device. Consequently, users' behaviour towards using applications has changed as a result of the new technology. Users are "always-on", carrying their mobile devices all the time (Weber & Rech, 2010). Mobile applications are widely used in the travel and tourism industry, both by customers and service providers. For instance, navigation applications for route planning and GPS services (e.g. Waze, Google Maps); social networks for travel reviews (e.g. TripAdvisor); picture galleries (e.g. Instagram); services such as emergency calls and healthcare provision; and many other applications are used by the majority of tourists. Furthermore, mobile marketing, offer alerts and other e-commerce services such as ticket booking, hotel reservation and online check-in are among the services provided by the travel and tourism sector.

Web 3.0 was introduced in 2006 as the 'Semantic Web' (Patel, 2013). The idea of this third generation of the Web was to improve software and enhance the quality of services and processes, such as data mining, artificially intelligent searching that provides recommendations, and personalized suggestions in searches (Vieira & Isaia, 2015). Online and virtual shopping, smart search and advertising are categorized under Web 3.0, as are three-dimensional virtual worlds. In these environments, individuals or companies are able to interact with others by representing themselves as avatars (Patel, 2013), navigating virtual hotels (e.g. Virtual Aloft) and virtual destinations (e.g. Eiffel Tower) in Second Life. This level of the Web is still underutilized by the tourism sector.

As defined by Weber and Rech (2010), Web 3.5 is the transition between Web 3.0 and 4.0. The services are "fully pervasive, interactive, and autonomous agents considering the personal context based on advanced semantic technologies supporting reasoning and basic AI that

might bring the virtual and real world closer together" (p. 6). Natural language processing (NLP) like Inbenta, interactive real-life environments and 3D virtual social networks such as vTime are some examples of Web 3.5.

'Ubiquitous web', 'symbiotic web' and 'Ultra-Intelligent Electronic Agent' are the terms used to define Web 4.0 (Patel, 2013, p. 416). Weber and Rech (2010) refer to Web 4.0 as "autonomous, proactive, content-exploring, self-learning, collaborative, and content-generating agents based on fully matured semantic and reasoning technologies as well as Artificial Intelligence" (p. 7). In Web 4.0, the interaction between humans and machines is symbiotic. Machines are equipped with powerful hardware and software to analyse existing content and make the best possible decisions. For example, if a user searches for a destination in one of the search engines or on a website related to hotel or flight booking, Web 4.0 technologies allow the website to suggest all or a few of the best options. In addition, the recent development of a mobile robot application known as "digital friend of travel" will help tourists to plan and manage any travel issues (Soava, 2015, p. 112).

Web 5.0, known as 'sensory-emotion Web', is the latest version of the Web. The interaction between machine and human is enhanced by adding an emotional dimension (Parvathia & Mariselvi, 2017). For instance, machines can recognise facial expressions and react to them. Moreover, these technologies also have the facility to add sensorial emotions to avatars for virtual interactions, easing interactions between humans and virtual humans (Llargues Asensio et al., 2014).

The evolution of the Web and its application in tourism provides various opportunities for researchers to study the behaviour of consumers and service providers. However, tourism scholars and other researchers from different disciplines who work in the area of netnography in tourism have neglected the potential of more recent developments of the Web. The following section provides a deep systematic analysis of the researches that have been published during the last decade on netnography and tourism.

3. Systematic review of netnographic studies in tourism

In order to provide a comprehensive view of netnographic studies in tourism, this research adopts a systematic process of tracing existing knowledge (see Fig. 1). To locate suitable articles, a preliminary keyword search was conducted on Scopus, as it is considered to have a larger coverage of social science journals (particularly tourism) than other databases (Hall, 2011; Wijesinghe, Mura, & Bouchon, 2017). Subsequent searches were also conducted on Sage Journals (used by Chu, Tang, & Luo, 2016; Zhong, Wu, & Morrison, 2015), Science Direct (used by Chen & Law, 2016; Wang, Law, Hung, & Guillet, 2014), Web of Science (used by Lu & Stepchenkova, 2015; Steven, Morrison, & Castley, 2015), EBSCOhost Academic Search Complete, and Hospitality and Tourism Complete (used by Cheng, 2016; Marais, du Plessis, & Saayman, 2017). The choice of these databases was made purposefully, as they are known to be the largest and most popular multidisciplinary online databases for scientific research (Buhalis & Law, 2008; Cheng, 2016; Denizci Guillet & Mohammed, 2015; Ip, Law, & Lee, 2011; Tsang & Hsu, 2011).

The steps undertaken during the search and screening process are highlighted in Fig. 1. Firstly, the authors conducted the search on Scopus using the keywords 'netnography', 'online ethnography', 'webnography', 'cyber ethnography', and 'virtual ethnography'. The keyword combination was adopted from the study of Mkono and Markwell (2015). A further reason for including the additional keywords other than 'netnography' is because the phenomena of conducting ethnography via an online method are described in a multiplicity of keywords as shown in Fig. 3.
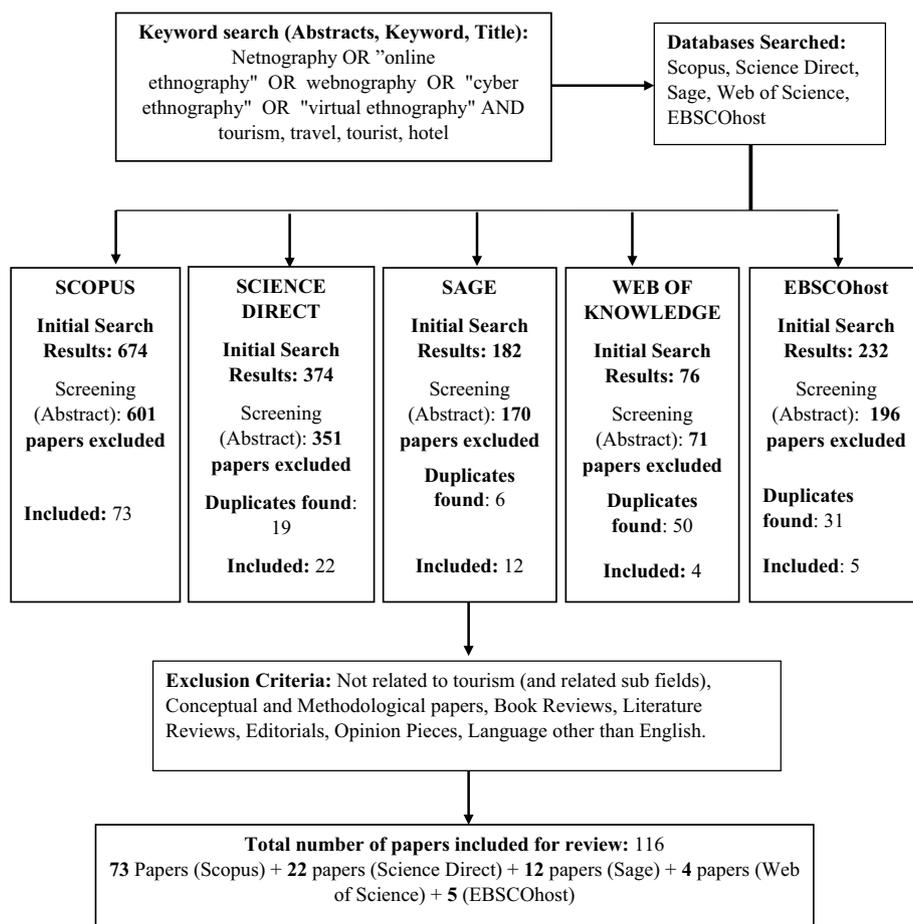

Fig. 1. Study selection process.

The search was limited to a 10-year period (2008–2018) in order to provide the most relevant and up-to-date knowledge (Wijesinghe et al., 2017). Subsequently, the authors searched Science Direct, Sage, Web of Science and EBSCOhost using the same keywords. At the initial stage, the searches resulted in 674 papers in Scopus, 374 papers in Science Direct, 182 papers in Sage, 76 in Web of Science, and 232 papers in EBSCOhost. The search results included articles, book chapters, conference papers, book reviews, and research notes. In this study, the analysis included not only journal articles but also empirical book chapters and research notes. The authors decided to include material other than peer-reviewed journal articles since book chapters and research notes undergo a similar peer-review process (double-blind). However, conference papers, books, letters and editorials are excluded in this study on the general belief that they do not make a significant contribution to knowledge development (Law, Leung, & Cheung, 2012). The search results, including the title, abstract, keywords, author's name, affiliations and year of publication, were then exported from the databases using a comma-separated value (CSV) file available from Scopus Document search. For Science Direct, Sage, Web of Science and EBSCOhost, the same information was exported as a Research Information Systems (RIS) file and then converted to Excel format.

After identifying total search results, one of the authors screened the papers based on the following inclusion criteria agreed upon by all authors of the paper: published in English; empirical in nature and are full papers; subjected to peer review; related to tourism and hospitality; and applied netnographic methodology. The screening process was undertaken in two stages. The first stage involved screening via abstracts, while the second stage involved further screening by analysing the full paper to determine its relevance to this study. The articles included in this study did not only stem from hospitality and tourism journals but also from journals in other disciplinary fields (see Table 1). Since tourism is recognized as an interdisciplinary and multi-disciplinary field of study (Tribe, 2010), it seemed pertinent not to limit the search only to tourism and hospitality journals. This, in turn, enabled the researchers to provide a review with a wider applicability (Denizci Guillet & Mohammed, 2015).

A total of 116 journal articles, empirical book chapters and research notes were identified after excluding duplicates and papers that did not match the study's inclusion criteria. All 116 papers were analysed using a content analysis method. In this process, each paper was studied carefully (full paper) according to the following thematic areas determined by the objective of this study: platform used for data collection; communication focus (textual/ visual); type of participants the study focused on; type of observation or data collection conducted online (normal or auto); whether researcher's reflexivity was employed; guideline or framework used for netnography; data analysis technique used; and other methods employed within the study (see Table 1).

4. Findings

The findings of this systematic review reveal the categorization of journals based on the disciplines, profile of netnography, type of platform used as the field of study, empirical material collection methods, data analysing techniques and framework employed in the study.

4.1. Profile of journals' disciplines

As mentioned in the methodology section, this study included journals beyond 'tourism and hospitality' as reported in Fig. 2. However, the majority of the papers included in the systematic review concerning netnographic studies in tourism and hospitality were published in hospitality and tourism journals (*n* = 85). Namely, as Table 1 reports, articles were published across the journals of Annals of Tourism Research (*n* = 15), Tourism Management (*n* = 13), Tourism Management Perspectives (*n* = 3), Journal of Sustainable Tourism (*n* = 4), Journal of Vacation Marketing (*n* = 5) and Journal of Travel Research

Table 1
List of journals covering the systematic review.

Journal	No. of papers
Annals of Tourism Research	16
Tourism Management	13
Journal of Vacation Marketing	5
International Journal of Culture, Tourism and Hospitality Research	4
Journal of Sustainable Tourism	4
Current Issues in Tourism	3
Journal of China Tourism Research	3
Journal of Destination Marketing and Management	3
Journal of Travel Research	3
Tourism Management Perspectives	3
Tourist Studies	3
International Journal of Tourism Cities	3
Advances in Culture, Tourism & Hospitality Research	2
International Journal of Contemporary Hospitality Management	2
Journal of Business Research	2
Journal of Hospitality and Tourism Management	2
Journal of Hospitality and Tourism Research	2
Journal of Travel and Tourism Marketing	2
Leisure Studies	2
Revista Turismo & Dessenvolvimento	2
Accounting, Organizations & Society	1
Advances in Tourism Research	1
Advertising and Branding: Concepts, Methodologies, Tools, and Applications	1
Anatolia	1
Asia Pacific Journal of Tourism Research	1
China Information	1
Convergence: The International Journal of Research into New Media Technologies	1
Corporate Reputation Review	1
Emotion, Space & Society	1
Ethnography	1
European Journal of Marketing	1
Event Management	1
International Journal of Consumer Studies	1
International Journal of Hospitality Management	1
Journal of Business Economics and Management	1
Journal of Ecotourism	1
Journal of Macromarketing	1
Journal of Product and Brand Management	1
Management Decision	1
Marketing Theory	1
New Media and Society	1
Qualitative Market Research	1
Qualitative Market Research: An International Journal	1
Social Memory and Heritage Tourism Methodologies	1
The International Communication Gazette	1
The Routledge International Handbook of Walking	1
Tourism Analysis	1
Tourism Geographies	1
Tourism Informatics: Visual Travel Recommender Systems, Social Communities, and User Interface Design	1
Tourism Recreation Research	1
Tourism, Culture and Communication	1
Tourismos	1
Procedia Computer Science	1
Theory and Practice in Hospitality and Tourism Research	1
Journal of Tourism Futures	1
The sociological Review	1
Journal of Gambling Studies	1

(*n* = 3). Business, management and economics were found to be the second major discipline in which articles concerning tourism and hospitality studies were published (*n* = 14), followed by communication & media (*n* = 4), humanities and social science (*n* = 2) and finally computer science (n = 1).

4.2. Profile of netnography

Studies evaluated in this systematic review used a multiplicity of terms to describe the method of netnography or the use of conducting ethnography via an online platform. The majority (*n* = 86) of studies
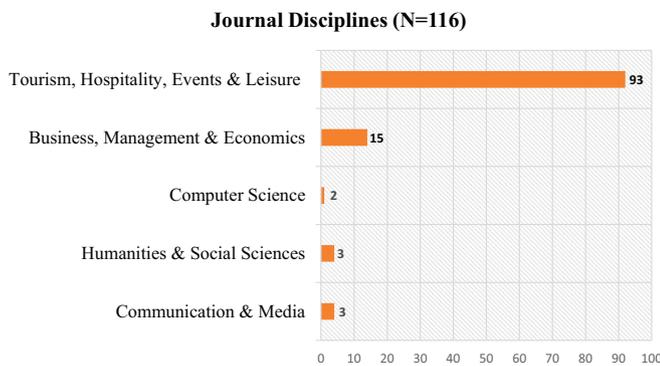
Journal Disciplines (N=116)

Fig. 2. Journal disciplines of included studies.
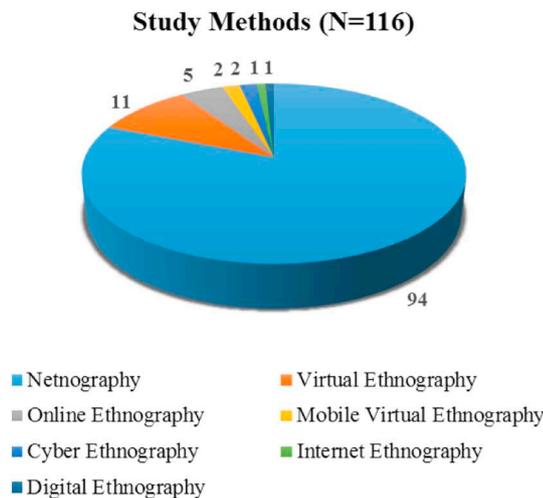
Study Methods (N=116)

Fig. 3. Study methods employed.

used the term 'netnography', while others described the method as virtual ethnography (*n* = 11), online ethnography (n = 4), mobile virtual ethnography (n = 2), cyber ethnography (n = 2), internet ethnography (n = 1), and digital ethnography (n = 1).

These terminologies could be interchangeably used as netnography, except for virtual ethnography and digital ethnography in cases where

the platform was not connected to the Internet. For instance, the study on virtual reality experience in leisure studies could be conducted on offline platforms.

Fig. 4 reports the online platforms used by studies for data collection. Among them, 110 papers used data from interaction websites such as traveller blogs (*n* = 36), tourist reviews on *TripAdvisor* (*n* = 25), *Booking.com* (n = 1), *Airbnb* (n = 1), *Couchsurfing* (n = 3) and *Lonely Planet* (n = 2), forums and discussion boards (*n* = 16), and social networking sites such as *Facebook* (n = 14), *Twitter* (n = 4), *YouTube* (*n* = 6) and *Instagram* (n = 2). Analysis of non-interaction websites was utilized by 19 studies, most of which were based on websites of official tourism authorities. Although virtual tourism is on the rise, only one study was found to have conducted its netnography on a virtual reality environment, namely the platform known as *Second Life*.

4.3. Data collection and analysis methods employed in the studies

Table 2 reports the profile of the netnographic studies analysed in the systematic review. It presents the criteria for which we extracted the data including the communication focus of studies, type of participants, researcher standpoint and use of reflexivity, data analysis techniques, the framework used and also other methods (if any) used within the study. In the extraction of the data for 'communication focus', the authors were interested in whether the study evaluated textual communication (i.e. comments, static text) or visual communication (i.e. pictures, videos). The majority of the papers analysed (*n* = 94) used textual components across platforms for their analysis, while only two studies' analysis was based solely on visual communication media. Eleven of the studies analysed both textual and visual data, meaning they extracted data such as user-generated comments, posts, pictures and any other visual media for interpretation in the study.

The majority of the studies (*n* = 91) focused on tourist perspectives, in which the understanding and analysis of the study were based on the perspectives of the traveller, while some (*n* = 13) reversed the equation to focus on the business aspects of tourism. These studies focused on understanding the perspectives of tourism businesses, governmental bodies, and employees in the industry. Most authors conducted normal or covert netnographic studies, where the researcher is a passive on-looker, while three studies were conducted as auto-netnographies. However, one aspect that was observed is that, within the 116 netnographic studies included for analysis, only 15 studies provided a
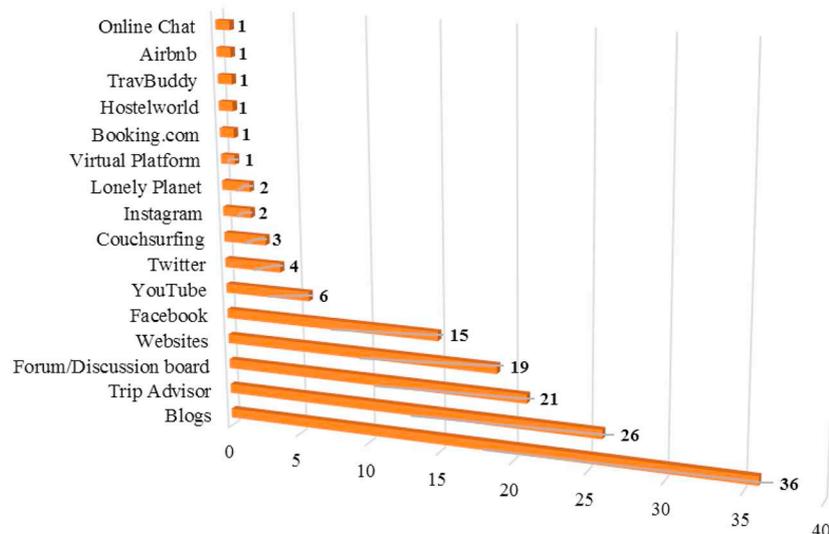
Platforms used for Netnographic Analysis

Fig. 4. Platforms used for netnographic data collection.

Table 2
Profile of papers reviewed.

Communication Focus	
Textual communication (i.e. posts, comments)	103
Visual communication (pictures, videos)	2
Both	11
Type of Participants	
Travel consumers (tourists, visitors, expats)	99
Travel businesses (including government, and business employees)	14
Unclassified	3
Researcher Stand Point	
Normal netnography	111
Auto-netnography	5
Researcher Reflexivity	
Included	19
Not-included	97
Data Analysis Technique	
Thematic Analysis	37
Content Analysis	19
Coding	18
Discourse Analysis	10
Other (sentiment analysis, narrative analysis, mapping, frequency analysis)	9
Mixed	1
Unclassified	21
Framework Used	
Kozinets' (1998, 1999, 2000, 2002, 2010, 2015)	47
Mkono & Markwell (2015)	1
Mkono (2013)	1
Belz and Baumbach (2010)	1
Gajjala (2006)	1
Germann Molz (2012)	2
Hine (2000)	1
Unclassified (no mention of the framework used for netnography)	61
Other Methods Used	
Interviews (face-to-face, online, telephone)	26
Fieldwork (ethnography, observation)	16
Document analysis	3
Focus group discussions	2
Questionnaire	2
Online Survey	2

reflexive account of the author/s, while 92 papers did not provide any details of the interpreter in the study.

Thematic analysis ($n = 34$), coding ($n = 18$), content analysis ($n = 16$), and discourse analysis ($n = 10$) were found to be the most applied analysis techniques within the studies, while other methods such as sentiment analysis, narrative analysis, mapping and frequency analysis were used by a minority of studies. It must be noted that 21 studies out of 116 made no mention in the study of how their data was analysed. Some studies ($n = 32$) were observed to have incorporated other methods (one or more) of data collection to support the netnographic data or vice versa. Interviews ($n = 25$), fieldwork ($n = 14$), document analysis ($n = 3$), focus group discussions ($n = 2$), questionnaires ($n = 2$), and online surveys ($n = 2$) were found to be the most popular methods.

In terms of frameworks used for conducting netnographic studies, 47 studies utilized the guidelines of netnography pioneered by Kozinets (1998, 1999, 2002, 2010, 2015). A majority of researchers referred to Kozinets' framework for matters concerning research design, online data collection, data analysis, and ethics of obtaining online material, particularly User-Generated Content (UGC). A minority of studies ($n = 7$) referred to Mkono and Markwell (2014); Mkono (2013); Belz and Baumbach (2010); Gaijala (2006); Germann-Molz (2012), and Hine (2000) as a guideline for designing and conducting their netnographic studies. 61 studies out of the 116 did not mention a reference to a framework for conducting their online ethnographic research.

5. Discussion

The existence of many diverse platforms and communities on the Internet provides scientists and social scientists with a great opportunity to use the net as a means of collecting data and conducting fieldwork. Among the various online research methods and approaches employed by tourism scholars, 'netnography' is one of the most important.

Researchers in business-related disciplines with a focus on tourism-related topics (Bartl et al., 2016) have adopted netnography. However, tourism scholars have underutilized this methodology (Mekono & Markwell, 2015). Indeed, most netnographic studies conducted in tourism refer to Web 1.0 and Web 2.0 platforms, including websites, blogs and social media, such as Facebook (e.g. Hoksbergen & Insch, 2016), TripAdvisor (e.g. Mkono & Tribe, 2016), Travel Blogs (e.g. Chandralal, Rindfleish, & Valenzuela, 2014) and YouTube (e.g. Pietrobruno, 2014). Only a few studies have been conducted on Web 3.0 (e.g. virtual worlds, such as SecondLife (Tavakoli & Mura, 2015)) and no ethnographic studies were found to have been conducted on Web 4.0 and 5.0. There could be three possible reasons for this situation. Firstly, Web 1.0 and Web 2.0 are used by a broader range of people and are more popular among senior users and researchers. Secondly, many tourism researchers may not be aware of the existence of the more advanced developments of the Web. Finally, although some tourism scholars may be aware of the existence of more immersive platforms, they may never have experienced them.

It is apparent from Fig. 4 that the majority of researchers conducted their studies on Web 1.0 or Web 2.0. However, the variety of platforms even in these two versions of the Web is quite extensive. For example, TravelTogether and TravelGirls, which are social networks aimed at finding travel companions; user-generated content websites like TripAdvisor and Airbnb; and alternatives to those, like Priceline, FlipKey, and Orbitz, among many other similar platforms. Furthermore, YouTube, Tripfilms, Facebook and Instagram are examples of online video sharing platforms. RSS websites are interesting platforms for conducting netnography; for example, how users find the experience of using Expedia, Hotwire, Booking.com, Travelocity and Trivago. Tagging (e.g. Flickr, Instagram) and wikis (e.g., Wikitravel) are parts of Web 2.0 that netnographers can consider as research platforms; for instance, how Wikitravel is used in tourism education.

As Tavakoli and Mura (2018) discuss, netnographies in tourism could help to explore the experiences of tourists, suppliers and developers. As the results of this review show, the majority of papers focus on tourist experience. Only a few researchers look at the suppliers' point of view, and no papers were found from the developers' perspective. Data collection methods that are employed in tourism netnographic studies are the other main concern of this review. The other common method of empirical data collection was online interviews, while alternative methods such as online focus groups, online group discussions and different types of observation were rarely utilized.

Most of the papers are the result of textual analysis of tourists' online posts. Only a few papers analysed both textual and visual data. This outcome was expected as the majority of netnographic studies used Web 1.0, 1.5 or 2.0 as the field of their study. However, collecting data from Web 2.5 to 5.0 becomes more challenging in terms of communication forms and accessibility. On one hand, communication may not only be presented in textual and visual forms but also verbally, and by using smell or touch, as these technologies have been developed to be as immersive as possible. Moreover, the level of participant involvement is increased and more active. For example, virtual tourists' behaviours could be observed and analysed by researchers on a Web 3.0 platform such as SecondLife or vTime. These virtual environments, which simulate actual and imaginary destinations, are visited by millions of people every year, giving them the opportunity of socializing with other virtual tourists or virtual humans.

On the other hand, the communications may not be accessible to the public. Therefore, it may not be easy to collect data, as after the advent of mobile applications many communications became private. Collecting these private textual and verbal communications among users, and between users and machines, becomes more complicated. For instance, 'Intelligent assistants' like travel applications or smart

personal assistants (e.g. Allo) are another layer of Web 3.0 that can help tourists to have the best travel experiences. These personal assistants could, perhaps, help tourists throughout their journeys, from planning and booking flights and accommodation to help them during their trip. These assistants can give the best options for tourists to find their way with GPS based applications or can adjust plans according to weather forecasts. Collecting this information requires strict ethical procedures from the developer side, or interviews with the users to understand their experience.

While Web 4.0 and 5.0 are still under development and may not attract the attention of many researchers, these technologies are used in a few sectors, such as hotels. For example, 'Connie' is a concierge robot used in Hilton hotels. This robot can answer tourists' questions and learn from their inquiries to accommodate others. These robots could be trained to express their emotions as well, which leads to web 5.0. Hanson Robotics designed 'Sophia', which is an example of a robot who can express her emotions and ideas. This kind of robot can help the tourism industry in all the aspects previously discussed when considering other versions of the Web. Verbal communication would replace the textual, bringing the user experience to another level. In addition, these robots could be the subject of interviews for conducting netnographic studies.

Furthermore, the epistemological stand of the researcher in netnography is important. Based on the results of this study, researchers mostly have a passive role in conducting netnographic studies and are limited to analysing the material. In this respect, Kozinets, Dolbec, and Earley (2014) believe that a deep understanding of online communities "can only take place through prolonged engagement and immersion in a culture over a prolonged period of time" (p. 272). The findings of the current research reveal that most researchers did not report a prolonged engagement. In short, researchers should be part of the community for quite some time, possibly engaging with other community members. Moreover, very few researchers provided a reflexive account. Reflexivity helps the reader to understand the researcher's position in the study as they experience the same context. The reflexive account could be presented as autonetnography. This type of netnographic study has been rarely published in the discipline of tourism (Mkono, Ruhanen, & Markwell, 2015; Tavakoli, 2016).

6. Conclusion

Many studies have employed netnography as a methodology in the field of tourism, yet there is a relative paucity of empirical studies on Web 2.5 to Web 5.0. This paper gives an account of and the reasons for the widespread use of the internet in tourism. Studies analysed in this review used a multiplicity of netnographic approaches. Through a total systematic analysis of 116 papers, information pertaining to data collection methods of netnographic studies in tourism were extracted for analysis, as well as other information such as communication focus, type of participants, types of observation or data collection, whether reflexivity was employed and data analysis technique used.

The findings of this review reveal that most of these studies were conducted on Web 1.0, 1.5 and 2.0 (websites, blogs, and social media). There is a noticeable gap in utilizing Web 2.5, which mostly covers mobile applications. The necessity of understanding consumers' and tourists' experiences is essential for tourist destinations as the majority of tourists depend on their mobiles during their travels. Netnographers have, in the main, overlooked Web 3.0, 3.5, 4.0 and 5.0, perhaps due to a lack of information technology literacy. Furthermore, the investigation of the data collection and analysis methods that were employed in these studies show the focus of researchers were more on tourists' experiences, while most of this data was collected through textual communication. Thematic analysis was found to be the most commonly applied analysis technique.

This systematic review contributes to netnography knowledge in general and tourism in particular. It discusses the evolution of the Web

and combines with tourism experiences to cast light on the opportunities for employing netnography in tourism. The authors of this paper provide future research suggestions on conducting netnography on various levels of the Web, methods of data collection and analysis techniques.

Acknowledgment

References

Bartl, M., Kannan, V. K., & Stockinger, H. (2016). A review and analysis of literature on netnography research. *International Journal of Technology Marketing, 11*(2), 165–196. https://doi.org/10.1504/IJTMKT.2016.075687.

Belz, F.-M., & Baumbach, W. (2010). Netnography as a method of lead user identification. *Creativity and Innovation Management, 19*(3), 304–313. https://doi.org/10.1111/j.1467-8691.2010.00571.x.

Bengry-Howell, A., Wiles, R., Nind, M., & Crow, G. (2011). A review of the academic impact of three methodological innovations: Netnography, child-led research and creative research methods. *Economic & Social Research Council,* 1–37.

Buhalis, D., & Law, R. (2008). Progress in information technology and tourism management: 20 years on and 10 years after the Internet—The state of eTourism research. *Tourism Management, 29*(4), 609–623. https://doi.org/10.1016/j.tourman.2008.01.005.

Chandralal, L., Rindfleish, J., & Valenzuela, F. (2014). An application of travel blog narratives to explore memorable tourism experiences. *Asia Pacific Journal of Tourism Research, 20*(6), 680–693. https://doi.org/10.1080/10941665.2014.925944.

Chen, Y. F., & Law, R. (2016). A Review of research on electronic word-of-mouth in hospitality and tourism management. *International Journal of Hospitality and Tourism Administration, 17*(4), 347–372. https://doi.org/10.1080/15256480.2016.1226150.

Cheng, M. (2016). Sharing economy: A review and agenda for future research. *International Journal of Hospitality Management, 57*, 60–70. https://doi.org/10.1016/j.ijhm.2016.06.003.

Chu, Y., Tang, L., & Luo, Y. (2016). Two decades of research on luxury hotels: A review and research agenda. *Journal of Quality Assurance in Hospitality and Tourism, 17*(2), 151–162. https://doi.org/10.1080/1528008X.2015.1047076.

Cohen-Almagor, R. (2011). Internet history. *International Journal of Technoethics, 2*(2), 45–64. https://doi.org/10.4018/jte.2011040104.

Denizci Guillet, B., & Mohammed, I. (2015). Revenue management research in hospitality and tourism. *International Journal of Contemporary Hospitality Management, 27*(4), 526–560. https://doi.org/10.1108/IJCHM-06-2014-0295.

Fielding, R., Gettys, J., Mogul, J., Frystyk, H., Masinter, L., Leach, P., & Berners-Lee, T. (1999). Hypertext transfer protocol–HTTP/1.1. *Internet Engineering Task Force,* 1–114.

Gajjala, R. (2006). Cyberethnography: Reading South Asian digital diasporas. *Going native on the net: Indigenous cyberactivism and virtual diasporas over the World Wide Web* (pp. 272–289). London, UK: Routledge.

Germann Molz, J. (2012). *Travel connections: Tourism, technology and togetherness in a mobile world.* London, UK: Routledge.

Hall, M. C. (2011). Publish and perish? Bibliometric analysis, journal ranking and the assessment of research quality in tourism. *Tourism Management, 32*(1), 16–27. https://doi.org/10.1016/j.tourman.2010.07.001.

Hine, C. (2000). *Virtual ethnography.* London, UK: SAGE.

Hoksbergen, E., & Insch, A. (2016). Facebook as a platform for co-creating music festival experiences. *International Journal of Event and Festival Management, 7*(2), 84–99. https://doi.org/10.1108/IJEFM-02-2016-0012.

Ip, C., Law, R., & Lee, H. A. (2011). A review of website evaluation studies in the tourism and hospitality fields from 1996 to 2009. *International Journal of Tourism Research, 13*(3), 234–265. https://doi.org/10.1002/jtr.815.

Kozinets, R. (1997). I want to believe': A netnography of the X-Philes' subculture of consumption. *Advances in Consumer Research, 24*, 470–475. Retrieved from http://acrwebsite.org/volumes/8088/volumes/v24/NA-24.

Kozinets, R. V. (1998). On netnography: Initial reflections on consumer research investigations of cyberculture. *Advances in Consumer Research, 25*(September), 366–371.

Kozinets, R. V. (1999). E-tribalized marketing?: The strategic implications of virtual communities of consumption. *European Management Journal, 17*(3), 252–264.

Kozinets, R. V. (2002). The field behind the screen: Using netnography for marketing research in online communities. *Journal of Marketing Research, 39*(1), 61–72. https://doi.org/10.1509/jmkr.39.1.61.18935.

Kozinets, R. V. (2010). *Netnography: Doing ethnographic research online.* London, UK: SAGE.

Kozinets, R. V. (2015). *Netnography: Redefined* (2nd ed.). London, UK: SAGE.

Kozinets, R. V., Dolbec, P., & Earley, A. (2014). Netnographic analysis: Understanding culture through social media data. In U. Flick (Ed.). *The SAGE handbook of qualitative data analysis* (pp. 262–276). London: SAGE Publications, Inc. https://doi.org/10.4135/9781446282243.n18.

Law, R., Leung, D., & Cheung, C. (2012). A systematic review, analysis, and evaluation of research articles in the Cornell hospitality quarterly. *Cornell Hospitality Quarterly, 53*(4), 365–381. https://doi.org/10.1177/1938965512457458.

Llargues Asensio, J. M., Peralta, J., Arrabales, R., Bedia, M. G., Cortez, P., & Peña, A. L. (2014). Artificial intelligence approaches for the generation and assessment of

believable human-like behaviour in virtual characters. *Expert Systems with Applications, 41*(16), 7281–7290. https://doi.org/10.1016/j.eswa.2014.05.004.

Lu, W., & Stepchenkova, S. (2015). User-generated content as a research mode in tourism and hospitality applications: Topics, methods, and software. *Journal of Hospitality Marketing and Management, 24*(2), 119–154. https://doi.org/10.1080/19368623.2014.907758.

Marais, M., du Plessis, E., & Saayman, M. (2017). A review on critical success factors in tourism. *Journal of Hospitality and Tourism Management, 31*, 1–12. https://doi.org/10.1016/j.jhtm.2016.09.002.

Mkono, M. (2013). Netnography in qualitative tourism research. In J. Fountain, & K. Moore (Eds.). *CAUTHE 2013: Tourism and global change: On the edge of something big* (pp. 517–527). Christchurch, N.Z: Lincoln University.

Mkono, M., Ruhanen, L., & Markwell, K. (2015). From netnography to autonetnography in tourism studies. *Annals of Tourism Research, 52*, 167–169. https://doi.org/10.1016/j.annals.2015.03.002.

Mkono, M., & Tribe, J. (2016). Beyond Reviewing. *Journal of Travel Research, 56*(3), 287–298. https://doi.org/10.1177/0047287516636236.

Nind, M., Wiles, R., Bengry-Howell, A., & Crow, G. (2013). Methodological innovation and research ethics: Forces in tension or forces in harmony? *Qualitative Research, 13*(6), 650–667. https://doi.org/10.1177/1468794112455042.

Parvathia, M., & Mariselvi, R. (2017). A bird ' s eye on the evolution – Web 1.0 to Web 5.0 : Lib 1.0 to Lib 5.0. *International Journal of Advance Reseach Trends in Engineering and Technology, 4*(4), 167–176. Retrieved from https://www.onlinejournal.in/IJIRV2I4/138.pdf.

Patel, K. (2013). Incremental journey for World Wide Web : Introduced with Web 1.0 to recent Web 5.0 – A survey paper. *International Journal of Advanced Research in Computer Science and Software Engineering, 3*(10), 410–417.

Pietrobruno, S. (2014). Between narratives and lists: Performing digital intangible heritage through global media. *International Journal of Heritage Studies, 20*(7–8), 742–759. https://doi.org/10.1080/13527258.2013.807398.

Pileggi, S. F., Fernandez-Llatas, C., & Traver, V. (2012). When the social meets the semantic: Social semantic Web or Web 2.5. *Future Internet, 4*(4), 852–864. https://doi.org/10.3390/fi4030852.

Soava, G. (2015). Development prospects of the tourism industry in the digital age. *Young Economists Journal / Revista Tinerilor Economişti, 12*(25), 101–116.

Steven, R., Morrison, C., & Castley, J. G. (2015). Birdwatching and avitourism: A global review of research into its participant markets, distribution and impacts, highlighting future research priorities to inform sustainable avitourism management. *Journal of Sustainable Tourism, 23*(8–9), 1257–1276. https://doi.org/10.1080/09669582.2014.924955.

Tavakoli, R. (2016). My journeys in Second Life: An autonetnography. In C. Khoo-Lattimore, & P. Mura (Eds.). *Asian genders in tourism* (pp. 104). Channel View Publications.

Tavakoli, R., & Mura, P. (2015). 'Journeys in Second Life' – Iranian Muslim women's behaviour in virtual tourist destinations. *Tourism Management, 46*, 398–407. https://doi.org/10.1016/j.tourman.2014.07.015.

Tavakoli, R., & Mura, P. (2018). Netnography in tourism – Beyond Web 2.0. *Annals of Tourism Research.* https://doi.org/10.1016/j.annals.2018.06.002.

Tribe, J. (2010). Tribes, territories and networks in the tourism academy. *Annals of Tourism Research, 37*(1), 7–33. https://doi.org/10.1016/j.annals.2009.05.001.

Tsang, N. K. F., & Hsu, C. H. C. (2011). Thirty years of research on tourism and hospitality management in China: A review and analysis of journal publications. *International Journal of Hospitality Management, 30*(4), 886–896. https://doi.org/10.1016/j.ijhm.2011.01.009.

Vieira, J., & Isaías, P. (2015). Web 3.0 in web development. In T. Issa, & P. Isaia (Eds.). *Artificial Intelligence Technologies and the Evolution of Web 3.0* (pp. 209–228). Hershey PA: IGI Global. https://doi.org/10.4018/978-1-4666-8147-7.ch010.

Wang, L., Law, R., Hung, K., & Guillet, B. D. (2014). Consumer trust in tourism and hospitality: A review of the literature. *Journal of Hospitality and Tourism Management, 21*(1–9), https://doi.org/10.1016/j.jhtm.2014.01.001.

Weber, S., & Rech, J. (2010). An overview and differentiation of the evolutionary steps of the web X.Y movement. *Handbook of Research on Web 2.0, 3.0, and X.0* (pp. 12–39). IGI Global. https://doi.org/10.4018/978-1-60566-384-5.ch002.

Wijesinghe, S. N. R., Mura, P., & Bouchon, F. (2017). Tourism knowledge and neocolonialism – A systematic critical review of the literature. *Current Issues in Tourism,* 1–17. https://doi.org/10.1080/13683500.2017.1402871.

Zhong, L., Wu, B., & Morrison, A. M. (2015). Research on China's tourism: A 35-year review and authorship analysis. *International Journal of Tourism Research, 17*(1), 25–34. https://doi.org/10.1002/jtr.1962.

Rokhshad Tavakoli is a Senior Lecturer in the Faculty of Social Sciences and Leisure Management at Taylor's University, Malaysia. Her research interests include tourist behaviour, gender studies in tourism, 2D & 3D social networks, virtual and augmented reality in tourism, contemporary issues in tourism and, ethnographic and netnography approaches to research.

Sarah N.R. Wijesinghe is a PhD scholar in the Faculty of Social Sciences & Leisure Management, Taylor's University, Malaysia. Her research interests focus on neocolonial structures of power in Asian knowledge production and dissemination, critical theory and local knowledge systems.