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A content analysis of hospitality research's research methods in the 2010s

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Abstract

Purpose – This study aims to describe the development of hospitality research in terms of research methods and data sources used in the 2010s.

Design/methodology/approach – Content analyses of the research methods and data sources used in original hospitality research published in the 2010s in the Cornell Hospitality Quarterly (CQ), International Journal of Hospitality Management (IJHM), International Journal of Contemporary Hospitality Management (IJCHM), Journal of Hospitality and Tourism Research (JHTR) and International Hospitality Review (IHR) were conducted. It describes whether the time span, functional areas and geographic regions of data sources were related to the research methods and data sources.

Findings – Results from 2,759 original hospitality empirical articles showed that marketing research used various research methods and data sources. Most finance articles used archival data, while most human resources articles used survey designs with organizational data. In addition, only a small amount of research used data from Oceania, Africa and Latin America.

Research limitations/implications – This study sheds some light on the development of hospitality research in terms of research method and data source usage. However, it only focused on five English-based journals from 2010–2019. Therefore, future studies may seek to understand the impact of the COVID-19 pandemic on research methods and data source usage in hospitality research.

Originality/value – This is the first study to examine five hospitality journals' research methods and data sources used in the last decade. It sheds light on the development of hospitality research in the previous decade and identifies new hospitality research avenues.

Keywords Research method, Hospitality research, Content analysis, Functional areas, Geographic regions

Paper type Research paper

Introduction

Hospitality research has developed rapidly in the 2010s. Changes in economic, social and technological factors – including postrecession economic recovery, growth of the sharing economy, globalization and evolution in technology – have increased the number of hospitality research publications, changes in research topics and development in research methods and analytical techniques (e.g. Law *et al.*, 2012). There is also an increased emphasis on research rigor with a few recent content analyses studies analyzing analytical techniques (e.g. Cheah *et al.*, 2018; Xu and Martinez, 2018), research biases (e.g. Min *et al.*, 2016; Yüksel, 2017) and bibliometrics (e.g. Cunill *et al.*, 2019; García-Lillo *et al.*, 2016; Köseoglu *et al.*, 2016; Köseoglu *et al.*, 2015).

Despite these developments, much less attention in the last decade has been paid to examine hospitality empirical research methods – the tools and means (e.g. experiments,

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surveys and qualitative designs) researchers use to collect data to uncover new knowledge. A well-designed method ensures that hospitality research findings are not only valid but can also yield trustworthy practical implications to hospitality managers (McKercher, 2018). Accordingly, the research methods employed have often been suggested as an indicator to assess maturity, paradigm, sophistication, quality and progress of a discipline (e.g. Baloglu and Assante, 1999; Köseoglu *et al.*, 2016; Rivera and Upchurch, 2008). However, the lack of recent content analysis of the research methods used in hospitality research hinders our understanding of the current state of hospitality research or ways to improve its sophistication level.

Indeed, the recent development of technology has facilitated new research methods, such as user-generated data (e.g. online review), web data (e.g. hotel pricing data on websites) and simulation (Stamolampros *et al.*, 2020; Lu and Stepchenkova, 2015). Compared with traditional research methods (e.g. survey and experiment), these new methods are available to hospitality managers and researchers at a low cost (Lu and Stepchenkova, 2015). Technology also facilitates new data sources (e.g. online panels) (Aguinis *et al.*, 2021). More importantly, hospitality is a broad field with different functional areas (including marketing, finance, strategy, operations, technology and human resources [HR]) covering multiple geographic regions (including North America, Europe, Asia, Oceania, Latin America, Africa and multi-region) (Baloglu and Assante, 1999; Shen *et al.*, 2018). Yet, the education and preference in research methods in each function area and geographic region can differ (Ali *et al.*, 2021; Amarante, 2014; Mehmetoglu, 2004; Shen *et al.*, 2018). Therefore, a description of research methods and data sources by each functional area and geographic region can enhance validity and pinpoint specific areas that need further development (Shen *et al.*, 2018).

As we progress to the new decade of the 2020s, it is time to take stock of the research method used in the 2010s and look forward to new opportunities. To ensure the findings can be comparable to the content analysis of research methods conducted by Baloglu and Assante (1999), we focused the content analysis on the five established hospitality journals, including the *Cornell Hospitality Quarterly (CQ)*, *International Journal of Hospitality Management (IJHM)*, *International Journal of Contemporary Hospitality Management (IJCHM)*, *Journal of Hospitality and Tourism Research (JHTR) and International Hospitality Review (IHR, formerly the FIU Hospitality Review)*. This content analysis focused on the research methods and data sources used in original hospitality empirical articles published in these five journals in 2010–2019 by (1) time span, (2) functional areas and (3) geographic regions of the data. It provides implications on the development of hospitality research in the last decade, identifies new avenues of study designs for functional areas and sheds light on potential collaboration opportunities and education and training for academia in different geographic regions. In the next section, we present a brief review of content analyses within the boundaries of hospitality.

Content analyses of research methods in hospitality

Research methods

Scholarly works have used content or bibliometric analyses to reveal the type of research (qualitative versus quantitative), research designs, measurement, sampling and statistical techniques used in hospitality research articles (e.g. Baloglu and Assante, 1999; Chon *et al.*, 1989; Crawford-Welch and McCleary, 1992; Mehmetoglu, 2004; Palmer *et al.*, 2005; Rivera and Upchurch, 2008). Previous content analysis of research methods (Baloglu and Assante, 1999; Law *et al.*, 2012; Line and Runyan, 2012; Yoo *et al.*, 2011) suggested six major methods, including (1) surveys, (2) experiments, (3) qualitative studies, (4) archival data, (5) objective data and (6) simulations. Previous recommendations (Fong *et al.*, 2016) further categorized experiments into (1) scenarios, (2) fields and (3) quasi-experiments. Similarly, past studies (e.g.

Arendt *et al.*, 2012) further classify qualitative studies into (1) structured questionnaires, (2) interviews and (3) focus groups and refined archival data into (1) printed materials (2) public data, (3) website data and (4) user-generated data. Some researchers also use multiple studies with mixed research methods to balance different research methods' strengths and weaknesses (Mariani and Baggio, 2020; Truong *et al.*, 2020).

Historically, survey research has dominated hospitality research (Baloglu and Assante, 1999). From 1967 to 2005, there were increasing empirical research articles over time, with 60–80% of the empirical hospitality publications using surveys (Baloglu and Assante, 1999; Chon *et al.*, 1989; Rivera and Upchurch, 2008). Such findings were in line with Dolnicar (2018), which showed the popularity of surveys in high-impact hospitality research in 2017. However, field development, editorial decisions and calls from prolific scholars can change the research method usage patterns. For example, former CQ Editor Michael Lynn has called for mix-method studies to "establish the generalizability of effects" (Lynn, 2017, p. 228). This echoes with the development outside hospitality (e.g. information systems, organizational development and strategic management), which requires multiple studies to validate the findings (Elbanna and Gherib, 2012; Olsen, 2019; Venkatesh *et al.*, 2013). Similarly, there were rekindled interests in qualitative studies, as evidenced by calls from scholars (e.g. Arendt *et al.*, 2012) and the creation of a special qualitative column in IJHM in 2018 (Elsevier, 2017). There were also calls for experiments as a tool to show causal relationships (Fong *et al.*, 2016; Mattila, 2004). Recent technology development has facilitated new research methods (e.g. user-generated data, web data and simulation), reducing reliance on surveys (Lu and Stepchenkova, 2015). For example, user-generated data dramatically increased from 1 article in 2001 to 33 articles in 2012 (Lu and Stepchenkova, 2015). Accordingly, hospitality research method usage might have changed considerably since the last review in the 1990s (Baloglu and Assante, 1999, which revealed the research patterns in five hospitality journals as in this study) and 2000s (e.g. Rivera and Upchurch, 2008, which focused on IJHM articles). In short, we ask

RQ1. What were the research methods used in the 2010s?

Data sources

Although each research method diverges in its ability to test causal relationships (Baloglu and Assante, 1999), data sources and samples also impact the external (i.e. generalizability and realism) and internal validity (i.e. measurement precision) of the findings. The strengths and weaknesses of each method are summarized in Table 1. However, such discussions are based on assumptions of the use of specific data sources. For example, Baloglu and Assante (1999) suggest that survey research can have high external validity if researchers use an effective sampling strategy. Similarly, because it is generally assumed that experiments use convenience samples with scenario experiments, scholars argue that experiments demonstrate causality at the cost of realism (Fong *et al.*, 2016; Mattila, 2004). With the assumption of using a small sample based on personal contact and snowballing sampling techniques, qualitative studies are commonly touted for providing rich data with a high level of realism at the cost of measurement precision and generalizability (Arendt *et al.*, 2012; Walsh, 2003). Archival studies mostly use publicly available data, which results in a high level of context realism and a low level of measurement flexibility (Jones, 2010).

However, technology facilitates the use of online research panels (e.g. Amazon's MTurk) and video conferences (e.g. Zoom), which lowered the cost for both quantitative (Stritch *et al.*, 2017) and qualitative studies (Richard *et al.*, 2018). It also changes previous assumptions of data sources used for specific research methods. For example, although online panels (e.g. MTurk) provide cheap and diverse data sources that can be used for both surveys and experiments, they may not represent the population (Aguinis *et al.*, 2021). There are also

Research methods	Advantages	Disadvantages
Mixed method	• Helps in addressing the weaknesses of each research method involved	• Requires more time
Survey	• Short turnaround of results	• Possibility for respondents misunderstanding a question is high
	• Typically cost less	• Requires highly standardized questionnaire format
	• Researchers can contact participants who might otherwise be inaccessible	• Deliberate falsification–occasionally, people deliberately give false answers
	• Can cover sensitive topics	• Acquiescence bias
	• The anonymity of respondents is high	• Extremity bias
	• Results are generalizable	• Callback or follow-up with respondents is difficult
Scenario experiment	• Low cost	• Scenarios are open to respondent's interpretation
	• Data collection is fast	• Low level of control
Field experiment	• Researcher's ability to manipulate the independent variable	• Hawthrone effect
	• Contamination from extraneous variables can be controlled more effectively than in other designs	• Require a lot of control so that the variables that are causing changes to occur can be isolated
	• Replication of an experiment with different subject groups and conditions	• There are limits to the types of manipulation and controls that are ethical
		• Generalization from nonprobability samples can pose problems despite random assignment
Quasi-experiment	• Less expensive	• Do not allow researchers to have full control over the treatment exposure or influence of extraneous variables
	• Require fewer resources	
	• More generalizable	
	• Better external validity	
Structured questionnaire	• Permit more direct comparability of responses	• Interviewer's neutrality has to be maintained
	• Can address more specific issues	• Lack the flexibility that is likely to produce truly creative or novel explanations
	• Results can be easily interpreted	
	• Cost advantages over focus groups and depth interviews	
Interview	• Gain considerable insight from each individual	• Interviewer's age, sex, style of dress, tone of voice, facial expressions, or other non-verbal characteristics may have some influence on a respondent's answers
	• Good for understanding unusual behaviors	• Social desirability bias is high
	• More valid results	• Results are dependent on the researcher's interpretation
		• Uses extensive amounts of interviewer time
Focus group	• Respondents sometimes feed on each other's comments to develop ideas	• Social desirability bias is high
	• Can be done quickly	• Results are not generalizable
	• More valid results	• Require objective, sensitive, and effective moderators

(*continued*)

Table 1.
Advantages and disadvantages of each research method

Research methods	Advantages	Disadvantages
Printed materials	• Easily accessible • Low cost • An entire entity can be investigated in depth with meticulous attention to detail	• Information can be outdated
Public data	• Easily accessible • No cost	• May need a lot of cleaning to filter out the required data
Website data	• Easily accessible	
User-generated data	• Easily accessible	• Difficult to mine the required data
Objective data	• Can be unobtrusive • Can yield actual behavior • Patterns	• Can be very expensive with participant-observer series
Simulation	• Critical situations can be investigated without risk • Conditions can be varied and outcomes investigated	• Can be expensive • A thorough understanding is needed and an awareness of all the factors involved • It may be difficult to interpret the simulation results

Table 1.

Note(s): For a more detailed discussion, please see Cooper and Schindler (2014), Zikmund *et al.* (2013)

concerns on whether paid participants can provide high-quality data. Table 2 lists the major data sources used in hospitality research. Given the changes in data sources, this study asks

RQ2. What were the data sources used in the 2010s?

Research methods and data sources by functional areas

To provide a refined understanding of research topics and methods used, some researchers focused their content analysis on one functional area within hospitality research – marketing (e.g. Line and Runyan, 2012; Oh *et al.*, 2004; Yoo *et al.*, 2011). These studies found that most marketing studies published between 2000 and 2010 use empirical field surveys. The results were in line with Morosan *et al.* (2014), which suggested a paradigm shift in hospitality marketing research in 1989–2013 to focus on empirical research with a change in the research method. Unfortunately, content analyses including a method component are rarely seen in other functional areas, including finance, strategy, operations, technology and HR.

Since each functional area has its research evolution, boundaries and field/discipline-specific expectations (Henning *et al.*, 2005), a content analysis of hospitality marketing research may not inform the general development of hospitality research. Aside from differences in norm and tradition developments, functional areas may use different research methods and data sources because of data availability and measurement levels (Li and Ryerson, 2019). For example, studies focusing on strategy and finance study organizational profitability as outcomes may need to rely on organizational level data, making it difficult to rely on research methods that use primary data (e.g. experiments and surveys) (Li and Ryerson, 2019). It suggests a need to extend Baloglu and Assante (1999) and Rivera and Upchurch (2008) by comparing the research method and data sources used in the different functional areas in the 2010s.

RQ3. What were the research methods and data sources used in each functional area in the 2010s?

Data sources	Example	Definitions	Diverse sample	Measurement flexibility	Cost	Possible method
Student data	Students	Data are collected from students or participants are recruited by students' contacts	Low	High	Low	Survey, experiment, qualitative, objective data
Panel data	MTurk	Participants are recruited by research firms or from third-party organizations that have a group of selected research participants	Medium	High	Medium	Survey, experiment, qualitative
Organizational data	Employee data from one organization	Collaboration with one or more organizations to recruit participants from organizational lists of employees/customers	Medium	Medium	Medium	Survey, experiment, qualitative, objective data, stimulation
User-generated data	Reviews	Data that are pulled from crowdsourcing content platform	High	Low	Low	Archival data
Public data	Financial reports	Data that are pulled from publicly available data sources, such as financial reports, government and websites	Medium	Low	Low	Archival data
Personal contacts	Industry experts identified by the researchers	Data that collected from people who are of direct or indirect contact with the researchers	Low	High	Medium	Survey, experiment, qualitative, objective data
Random data	Tourists in a destination	Participants are recruited by researchers randomly at locations of interests	Medium	High	Medium	Survey, experiment, qualitative
Mixed data sources		Multiple data sources are used	It depends on the data sources used			

Table 2. Major data sources used in hospitality research

Geographic regions

Language barriers, cultural differences and differences in researchers' expertise and training can change the use patterns of research methods in different geographic regions (Henning *et al.*, 2005; Kozak *et al.*, 2004). Law *et al.* (2012) and Shen *et al.* (2018) focused on author affiliation location and the country keywords in research published in 2008–2011 and

2002–2011. They found that geographic regions are related to the topics studied, the statistical technique used and the research intensity and development. They also showed that hospitality research primarily used data collected from North America and Asia. Morosan *et al.* (2014) noted a shift in the geographic data source in hospitality marketing research. However, as globalization increases in the 2010s, there is rapid development in the hospitality industry in Africa and Latin America (Benzitouni and Wawira, 2019; Schmitt and Cruz, 2018). As both Law *et al.* (2012) and Shen *et al.* (2018) focused on research published before 2011, it can be interesting to assess whether hospitality researchers have taken advantage of the globalization trends and collect data from different geographic regions.

RQ4. What was the geographic focus of data collection by hospitality researchers in the 2010s?

Research methods and data sources per geographic regions

Due to differential development, geographic representation provides better insights into assessing the evolution of research (cf. Law *et al.*, 2012; Shen *et al.*, 2018). Some studies focused on the content analysis in a specific country or geographic region, arguing that language barriers limit the exchange of information and research approaches among international scholars (Evren and Kozak, 2014; Huang and Hsu, 2008; Köseoglu *et al.*, 2015; Mehmetoglu, 2004; Tsang and Hsu, 2011). Education and linguistics may also influence the changes in the method used (Shen *et al.*, 2018). For example, non-English-native speakers may prefer sending quantitative over qualitative studies to the five studied journals because of the difficulties translating participants' in-depth responses (Van Nes *et al.*, 2010; Rahman, 2020). Data availability also varies across geographic regions (Amarante, 2014). This is particularly true with the use of panel data. For example, MTurk has been overrepresented by US and Indian users (O'Brochta and Parikh, 2021). At the same time, the online panels are rarely represented in geographic regions with poor Internet access, such as Africa and Latin America (Amazon Mechanical Turk, 2017). Therefore, we take a global focus to extend these studies concentrating on a single region/country (Evren and Kozak, 2014; Huang and Hsu, 2008; Mehmetoglu, 2004; Tsang and Hsu, 2011) and compare the research method and data sources in different geographic regions.

RQ5. What were the research methods and data sources used in each geographic region in the 2010s?

Method

Journals and articles selection

This study analyzed the research method used by the articles published in the five hospitality journals (CQ, IJHM, IJCHM, JHTR, IHR) from 2010 to 2019. In this section, we describe how we gathered data for the study. We first define our research scope. Next, we describe the coding methods. Based on the above discussions, we ask five questions, including

RQ1. What were the research methods used in the 2010s?

RQ2. What were the data sources used in the 2010s?

RQ3. What were the research methods and data sources used in each functional area in the 2010s?

RQ4. What was the geographic focus of data collection by hospitality researchers in the 2010s?

RQ5. What were the research methods and data sources used in each geographic region in the 2010s?

Consistent with Baloglu and Assante (1999), we narrowed our content reviews in these five hospitality journals (CQ, IJHM, IJCHM, JHTR and IHR) for four reasons. First, because tourism and hospitality research differ in the unit of analysis and the data availability, we limited our scope to hospitality research and excluded tourism journals (e.g. *Annals of Tourism Research*, *Tourism Management*). Second, we focused on hospitality journals with a general focus and excluded some functional-specific journals, such as the *Journal of Hospitality and Tourism Education* and the *Journal of Hospitality and Tourism Technology*. All five journals specify that they welcome research from all functional areas, such as marketing, finance, HR, strategy, operations and technology. Third, all the journals are well-established. Using the same set of journals by Baloglu and Assante (1999) also allows a direct comparison of the results in this decade (2010–2019) and the 1990s (1990–1996). Finally, all of these five journals welcome submissions of all research methods.

Coders and validity of coding

We analyzed the content systematically. First, three researchers developed the coding scheme in an initial meeting. Then, to ensure the accuracy and validity of coding, two researchers coded each article. Finally, inconsistencies were resolved by a discussion among the three researchers.

Coding method

Empirical vs conceptual. Researchers manually coded the articles in five steps. In the first step, we identified the articles to be analyzed and only included original empirical hospitality articles and research notes. Excluding editorial, there were 3,227 articles published between January 2010 and December 2019 in the five hospitality journals. After excluding 48 research method papers, 110 destination tourism papers, 199 literature reviews and 108 conceptual papers, we retained a total of 2,759 original hospitality empirical articles for this content analysis.

Coding research method and data sources. In the second step, we coded the research method into (1) mixed method, (2) survey, (3a) scenario experiment, (3b) field experiment, (3c) quasi-experiment, (4a) structured questionnaire, (4b), interview, (4c) focus group, (5a) printed materials, (5b) public data, (5c) website data, (5d) user-generated data, (6) objective data and (7) simulation based on the definition in Table 3. We also coded the data sources into (1) student data, (2) panel data, (3) organizational data, (4) user-generated data, (5) public data, (6) personal contacts, (7) random data and (8) mixed data sources based on the definition in Table 2. Finally, we noted the number of empirical studies in each article. Most articles (2,628) have one study, and 131 articles have multiple empirical studies. Among the 131 multi-studies articles, 50 articles used mixed methods, and 81 used the same methods. Additionally, 20 of the 131 multi-studies articles used mixed data sources, while the other 111 used the same data sources.

Coding functional areas. In the third step, we identified the functional areas. Following Baloglu and Assante (1999), we classified articles into six functional areas: marketing, finance, strategy, operations, technology and HR. Table 4 lists the definitions of each functional area, the editors' functional backgrounds and the distribution of articles. To ensure consistency in coding and avoid overlaps in functional areas, we coded the functional areas based on the study's dependable variables. For example, a study investigating the factors that increase customer satisfaction (e.g. Choi and Chui, 2001) was considered a marketing study. In contrast, a study investigating factors driving employee behaviors (e.g. Curtis *et al.*, 2013) was classified as a human resources study.

Coding geographic regions. Fourth, we coded the studies' geographic regions. We manually coded regions based on major continents: Africa, Europe, Asia (which includes

Research methods	Definitions
Mixed method	Research that uses two or more research methods
Survey	Research that uses scales to measure respondents' and raters' perceptions, attitudes and behaviors
Experiment: scenario	Research that randomly assigns functionals into experimental conditions and asks respondents to react based on a fictional case, plot and scenes
Experiment: field	Research that randomly assigns functionals into experimental conditions and asks respondents to react based on experience
Experiment: quasi-experiment	Research that assigns functionals into different conditions and asks respondents to react based on the conditions without random assignment
Qualitative: Structured questionnaire	Research that uses a list of pre-set open-ended questions to understand respondents' attitudes and behaviors; all participants receive the same list of questions and respond individually
Qualitative: interview	Research that asks respondents questions on a topic area in an unstructured one-on-one format; researchers can ask follow-up questions
Qualitative: focus group	Research that asks a group of respondents questions on a topic area and allows the group to discuss a topic
Archival: printed materials	Research in which researchers code data using news articles and library resources on a particular case
Archival: public data	Research that uses archival, publicly available data collected from financial institutions, annual reports and government data
Archival: website data	Research that uses website meta-data (e.g. time spent on the website, hit count, website traffic) and/or data available on a website (e.g. hotel price, locations)
Archival: user-generated data	Research that collects data users inputted content (e.g. online review)
Objective data	Research that observers keep track of the data in the respondents' natural environment using machines and company records (e.g. air quality index, heart rate, slot machine pay rate)
Simulation	Research that uses computer-generated data and data modeling techniques to test model

Note(s): Please see Baloglu and Assante (1999), Arendt *et al.* (2012) for full discussion

Table 3.
Definitions of research method

Russia, East Asia, South Asia and Middle-eastern), North America (includes Canada and the USA), Latin America (which includes Mexico, South America and the Caribbean), Oceania (which includes Australia and New Zealand) and multi-regions (which collect data from two or more regions). Considered similarities in culture within a large continent area (Hofstede, 2001) and some studies collecting data from multiple proximal countries, regions can provide more clarity in the results than a country-level analysis. In the next section, we present the results of our content analyses.

Results

Articles distribution by journals

The total number of original empirical articles published increased from 178 to 491 articles from 2010 to 2019. Table 4 shows that the journals differ significantly on the published articles' functional areas ($\chi^2 = 81.61, p < 0.01$). Over half of the JHTR articles were marketing studies (51%, 130 articles), higher than the other four journals (ranging from 36% [107 articles, CQ] to 41% [24 articles, IHR]). Also, CQ had a relatively large portion of finance studies (18%, 54 articles) when compared with IJHM (13%, 164 articles), IJCHM (9%, 78 articles), IHR (3%, 2 articles) and JHTR (5%, 12 articles). The five journals were very similar in the other functional areas, including strategy (ranging from 5% [3 articles, IHR] to 13% [33 articles, JHTR]), operations (ranging from 5% [3 articles, IHR] to 11% [27 articles, JHTR]) and

Table 4. Definitions of functional area

Functional area	Definitions	Example of topics	CQ	IJHM	IJCHM	JHTR	IHR	Row total
Marketing	Study that examines factors that changes customers' attitudes and behaviors towards a product	Customer satisfaction, purchase intention, customer WOM	107 (36%)	496 (39%)	345 (39%)	130 (51%)	24 (41%)	1,102 (40%)
Finance	Study that investigates factors that can change the profitability of the organization	Assess management, return-on-investment (ROI), occupancy rate, ADR	54 (18%)	164 (13%)	78 (9%)	12 (5%)	2 (3%)	310 (11%)
Strategy	Study that examines general social-economic trends that can affect the organization and organizational actions that are designed to achieve long-term competitive advantages	Competition strategy, innovation	26 (9%)	131 (10%)	82 (9%)	33 (13%)	3 (5%)	275 (10%)
Operations	Study that explores day-to-day functional issues in a hospitality organization, food service management, green and environmental issues	Facility management, menu design, cost-control, discrimination, waste management	31 (10%)	111 (9%)	72 (8%)	27 (11%)	3 (5%)	244 (9%)
Technology	Study that investigates factors that changes users' usage and acceptance of technology	Technology acceptance, likelihood to use a technology	14 (5%)	33 (3%)	35 (4%)	14 (6%)	3 (5%)	99 (4%)
Human resources (HR)	Study that investigates issues that are related to the employees' attitudes and behaviors	employee's performance, turnover, job satisfaction, job performance	67 (22%)	338 (27%)	264 (30%)	37 (15%)	23 (40%)	729 (26%)

Note(s): CQ Editor: Linda Canina (2006–2010, finance), Bruce Tracey (2010–2013, 2018–now, HR), Michael LaTour (2013–2015, Marketing), Michael Lynn (2016–2018, marketing); IJHM Editor: Abraham Pizam (start-2019, Marketing, HR), Manuel Rivera (2019–now, Tourism, Marketing, Finance); IJCHM Editor: Fevzi Okumus (strategic management, HR, operations); JHTR Editor: Anna Mattila (2009–2015, marketing), Chris Roberts (2015–2020, strategy); IHR Editor: Mary

technology (ranging from 3% [33 articles, IJHM] to 6% [14 articles, JHTR]). On the other hand, IHR published almost 40% of HR articles (23 articles), higher than the other four journals (ranged from 15% [37 articles, JHTR] to 30% [264 articles, IJCHM]).

Research methods' usages in the 2010s

RQ1 focused on the research method used in the 2010s. Table 5 illustrates the research method used in the last decade. Survey research increased sharply in the early 2010s from 44% in 2010 (78 articles) to 55% in 2013 (152 articles), followed by a stable period in the rest of 2010s ranging from 51 to 48% in 2014–2019 (128–237 articles). Overall, 51% of analyzed articles used survey designs (i.e. 1,401 articles).

Archival data were the second popular research method (593 articles, 22% of all articles), comparable to the results in the 1990s (19%, Baloglu and Assante, 1999). While the use of public data, including data from financial markets and census data, decreased to 13% (363 articles), new forms of archival data – namely web data (3%, 79 articles) and user-generated data (4%, 116 articles) – played a more prominent role in empirical hospitality research. Although archival data remained relatively stable over time, there were some changes in the sub-categories. While the use of printed materials and public data decreased over time, there were more published articles using web data and user-generated data. In particular, the number of studies using user-generated data, such as online reviews, increased from 3 articles (2% of the published articles in 2010) to 42 articles (9% of the published articles in 2019).

Experiments were the third popular research method (11% of all articles, 318 articles). There was also a strong positive correlation between the total number of studies and the percentage of the experiment study ($r = 0.69$, $p < 0.05$). Scenario experiment was the most popular among the three different types of experiments (8%, 225 articles), followed by quasi-experiment (2%, 56%) and field experiment (1%, 37 articles). Specifically, the representation of scenario experiments doubled over the years (from 4% [7 articles] in 2010 to 8% [41 articles] in 2019).

Around 9% of the published articles (235 articles) used a qualitative method. Among all three qualitative methods (structured questionnaire, interview and focus group), interviews were the most popular, with 200 published articles (7% of all articles). The number of qualitative studies decreased in the first half of the 2010s, dropping from 27 articles (16%) in 2010 to 14 articles (6%) in 2014. However, the number of qualitative studies increased in the latter half of the 2010s, representing 9% of the articles published in 2018 (29 articles) and 2019 (42 articles).

Similar to previous studies (e.g. Baloglu and Assante, 1999; Law *et al.*, 2012), there was only a handful of studies using objective data (1%, 40 articles) and simulation (1%, 14 articles). Around 6% of the published articles used a mixed method design. However, the portions of mixed method articles decreased from 10% in 2010 (18 articles) to only 6% in 2019 (29 articles). The total number of publications published in a year was negatively related to the percentage of mix-method studies ($r = -0.56$, $p < 0.1$).

Data sources used in the 2010s

Figure 1 answers RQ2, which investigates the use of data sources in the 2010s. Half (50%) of the studied articles use organizational data (1,368 articles), making it the most used data source. However, organizational data usage decreased from 58% (104 articles) to 35% (174 articles), while panel data increased from 3% (5 articles) to 24% (118 articles) over time. Although public data dropped from a high of 21% in 2010 (38 articles) to 12% in 2016 (32 articles), it slowly recovered to 18% in 2019 (93 articles). User-generated data increased from 1% (2 articles) to 8% (40 articles) over the 2010s, indicating the increasing reliance on this new

Table 5. Research methods over time

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Row total
Mixed method*	18 (10%)	13 (6%)	16 (7%)	16 (6%)	22 (9%)	8 (3%)	11 (4%)	15 (5%)	10 (3%)	29 (6%)	158 (6%)
Experiment (total)	15 (9%)	18 (7%)	20 (9%)	26 (10%)	34 (13%)	35 (14%)	35 (13%)	41 (14%)	41 (12%)	52 (11%)	318 (11%)
- Scenario	7 (4%)	16 (7%)	13 (6%)	21 (8%)	23 (9%)	25 (10%)	23 (9%)	29 (10%)	27 (8%)	41 (8%)	225 (8%)
- Field	3 (2%)	1 (0%)	5 (2%)	4 (1%)	8 (3%)	3 (1%)	3 (1%)	4 (1%)	3 (1%)	3 (1%)	37 (1%)
- Quasi	5 (3%)	1 (0%)	2 (1%)	2 (1%)	3 (1%)	7 (3%)	9 (3%)	8 (3%)	11 (3%)	8 (2%)	56 (2%)
Survey	78 (44%)	106 (48%)	115 (49%)	152 (55%)	128 (51%)	131 (53%)	138 (53%)	140 (50%)	176 (54%)	237 (48%)	1,401 (51%)
Qualitative (total)	27 (16%)	24 (10%)	20 (8%)	20 (7%)	14 (6%)	19 (8%)	26 (9%)	14 (5%)	29 (9%)	42 (9%)	235 (9%)
- Structured questionnaire	1 (1%)	1 (0%)	2 (1%)	1 (0%)	0 (0%)	2 (1%)	1 (0%)	3 (1%)	4 (1%)	4 (1%)	19 (1%)
- Interview	26 (15%)	20 (9%)	17 (7%)	16 (6%)	14 (6%)	14 (6%)	24 (9%)	10 (4%)	25 (8%)	34 (7%)	200 (7%)
- Focus group	0 (0%)	3 (1%)	1 (0%)	3 (1%)	0 (0%)	3 (1%)	1 (0%)	1 (0%)	0 (0%)	4 (1%)	16 (1%)
Archival data (total)	37 (22%)	49 (22%)	56 (24%)	51 (19%)	47 (18%)	51 (21%)	46 (18%)	65 (23%)	65 (20%)	126 (25%)	593 (21%)
- Printed materials	3 (2%)	8 (4%)	4 (2%)	9 (3%)	3 (1%)	0 (0%)	4 (2%)	1 (0%)	1 (0%)	2 (0%)	35 (1%)
- Public data	28 (16%)	37 (17%)	40 (17%)	30 (11%)	33 (13%)	36 (15%)	26 (10%)	29 (10%)	39 (12%)	65 (13%)	363 (13%)
- Web data	3 (2%)	3 (1%)	8 (3%)	5 (2%)	8 (3%)	6 (2%)	7 (3%)	13 (5%)	9 (3%)	17 (3%)	79 (3%)
- User-generated data	3 (2%)	1 (0%)	4 (2%)	7 (3%)	3 (1%)	9 (4%)	9 (3%)	22 (8%)	16 (5%)	42 (9%)	116 (4%)
Objective data	3 (2%)	5 (2%)	6 (3%)	8 (3%)	5 (2%)	1 (0%)	3 (1%)	2 (1%)	2 (1%)	5 (1%)	40 (1%)
Simulation	0 (0%)	4 (2%)	0 (0%)	1 (0%)	2 (1%)	3 (1%)	2 (1%)	2 (1%)	0 (0%)	0 (0%)	14 (1%)
Column total	178 (100%)	219 (100%)	233 (100%)	275 (100%)	252 (100%)	248 (100%)	261 (100%)	279 (100%)	323 (100%)	491 (100%)	2,759 (100%)

Note(s): *A study that uses two different sub-research methods within one major research method is considered mixed method in this table
Percentages in brackets () are the percentage of column total

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	
Student data	12 (7%)	14 (6%)	11 (5%)	13 (5%)	13 (5%)	6 (2%)	8 (3%)	8 (3%)	12 (4%)	10 (2%)	107 (4%)
Panel data	5 (3%)	7 (3%)	18 (8%)	9 (3%)	22 (9%)	41 (17%)	50 (19%)	59 (21%)	68 (21%)	118 (24%)	397 (14%)
Organizational data	104 (58%)	124 (57%)	124 (53%)	184 (67%)	138 (55%)	118 (48%)	140 (54%)	117 (42%)	145 (45%)	174 (35%)	1368 (50%)
User-generated data	2 (1%)	2 (1%)	4 (2%)	7 (3%)	5 (2%)	6 (2%)	8 (3%)	23 (8%)	16 (5%)	40 (8%)	113 (4%)
Public data	38 (21%)	43 (20%)	51 (22%)	46 (17%)	52 (21%)	52 (21%)	32 (12%)	44 (16%)	48 (15%)	93 (19%)	499 (18%)
Personal contacts	2 (1%)	5 (2%)	1 (0%)	1 (0%)	8 (3%)	3 (1%)	5 (2%)	8 (3%)	4 (1%)	7 (1%)	44 (2%)
Random data	7 (4%)	9 (4%)	10 (4%)	6 (2%)	6 (2%)	9 (4%)	7 (3%)	10 (4%)	17 (5%)	25 (5%)	106 (4%)
Mixed data sources	8 (4%)	15 (7%)	14 (6%)	9 (3%)	8 (3%)	13 (5%)	11 (4%)	10 (4%)	13 (4%)	24 (5%)	125 (5%)
Total	178 (100%)	219 (100%)	233 (100%)	275 (100%)	252 (100%)	248 (100%)	261 (100%)	279 (100%)	323 (100%)	491 (100%)	2759 (100%)

Figure 1.
Data sources original hospitality empirical research over time

data source. Student data decreased from a high of 7% in 2010 (12 articles) to 2% in 2019 (10 articles). Other data sources, including personal contact (2%, 44 articles), random data (4%, 106 articles) and mixed data sources (5%, 125 articles), remain to be used in less than 5% of articles in 2010s.

Functional areas

To further understand the above results, we analyzed how the functional areas of original hospitality empirical research changed over time (see Figure 2). Marketing was the most popular functional area (40%, 1,102 articles). The portion of marketing articles increased from 33% in 2010 (59 articles) to 44% in 2019 (214 articles). HR were the second most popular functional area, accounting for 25% (729 articles) of all articles. However, HR articles decreased from 32% (57 articles) to 24% (118 articles) over the 2010s. The portion of finance (11%, 310 articles), strategy (10%, 275 articles) and operations (9%, 244 articles) articles remained relatively stable over time. In the 2010s, there was a slight increase in technology articles from 2% in 2010s (4 articles) to 4% in 2019 (21 articles). However, technology remains the least popular functional area (4%, 99 articles) in the 2010s. In short, although there are more articles published in each year ($r_{\text{year-total number of articles}} = 0.80, p < 0.05$), marketing research contributes to most of the increases ($r_{\text{year-total number of marketing articles}} = 0.88, p < 0.05$).

Research methods by functional areas

Figure 3 addresses RQ3 by showing the research methods by functional areas. Functional areas were related to research method usage ($\chi^2_{\text{df} = 65} = 039.05, p < 0.01$). Operations was the only functional area that used all seven research methods, including 29% surveys (70 articles), 27% archival data (65 articles), 19% qualitative methods (47 articles), 9% objective data (22 articles), 6% experiments (15 articles) and 3% simulations (7 articles). Additionally, 7% (18 out of 244) of the operations articles used mixed method designs.

Similarly, marketing articles used a wide range of methods, including 5% mixed method (60 articles), 53% surveys (584 articles), 24% experiments (260 articles), 12% archival data (133 articles) and 5% qualitative methods (51 articles). The increasing number of marketing studies over time (see Figure 2) and the diverse methods used in marketing articles (see Figure 3) may explain the rise of experiment and user-generated data over time. Indeed, 83% (260 out of 315) of the experimental studies and 80% (93 out of 115) of the user-generated data were marketing articles.

The diversity of research methods used in operations and marketing articles strongly contrasts with finance articles, which predominantly used archival data (84%, 261 articles). Moreover, 73% (227 articles) of finance articles use only one category of archival data – public data. Indeed, 63% (227 out of 360) of the public data articles were finance articles. A small portion of the finance articles used surveys (8%, 26 articles) and qualitative methods (2%, 6 articles). Around 3% of finance articles (10 articles) used a mixed method design. Only one finance article used experiments, making it the field with the fewest articles that employed experiments.

Similarly, HR articles did not use diverse research methods. Over 76% of HR articles (551 articles) used surveys, while 11% (78 articles) used qualitative methods. With only 5% of HR articles (35 articles) used experiments, experimental designs were not common in HR articles. There was only 5% (35 articles) used a mixed method design. Only 4% of HR articles (29 articles) used archival data. There were no HR studies that used objective data, and only 1 HR study used simulations.

Strategy and technology articles shared a similar pattern in the research method. Such that the top three methods were surveys (42% [115 out of 275 strategy articles]; 57% [56 out of 99 technology articles]), archival data (33% [92 out of 275 strategy articles]; 16% [16 out of 99

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	
Marketing	59 (33%)	69 (32%)	72 (31%)	106 (39%)	99 (39%)	117 (47%)	104 (40%)	132 (47%)	130 (40%)	214 (44%)	1102 (40%)
Finance	24 (13%)	31 (14%)	27 (12%)	27 (10%)	30 (12%)	34 (14%)	23 (9%)	22 (8%)	35 (11%)	57 (12%)	310 (11%)
Strategy	18 (10%)	25 (11%)	34 (15%)	29 (11%)	19 (8%)	16 (6%)	30 (11%)	25 (9%)	37 (11%)	42 (9%)	275 (10%)
Operations	16 (9%)	29 (13%)	28 (12%)	30 (11%)	25 (10%)	17 (7%)	15 (6%)	24 (9%)	21 (7%)	39 (8%)	244 (9%)
Technology	4 (2%)	1 (0%)	9 (4%)	8 (3%)	11 (4%)	5 (2%)	17 (7%)	10 (4%)	13 (4%)	21 (4%)	99 (4%)
Human resources (HR)	57 (32%)	64 (29%)	63 (27%)	75 (27%)	68 (27%)	59 (24%)	72 (28%)	66 (24%)	87 (27%)	118 (24%)	729 (26%)
Total	178	219	233	275	252	248	261	279	323	491	2759

Figure 2.
Functional areas over time

	Marketing	Finance	Strategy	Operation	Technology	Human resources (HR)
Mixed-method	60 (5%)	10 (3%)	8 (3%)	18 (7%)	7 (7%)	35 (5%)
Experiment	260 (24%)	1 (0%)	2 (1%)	15 (6%)	7 (7%)	35 (5%)
- scenario experiment	** 183 (17%)*	** 1 (0%)*	** 1 (0%)*	** 11 (5%)*	** 5 (5%)*	** 24 (3%)*
- field experiment	** 25 (2%)*	** 0 (0%)*	** 0 (0%)*	** 4 (2%)*	** 2 (2%)*	** 6 (1%)*
- quasi-experiment	** 50 (5%)*	** 0 (0%)*	** 1 (0%)*	** 0 (0%)*	** 0 (0%)*	** 5 (1%)*
Survey	584 (53%)	26 (8%)	115 (42%)	70 (29%)	56 (57%)	551 (76%)
Qualitative	51 (5%)	6 (2%)	56 (20%)	47 (19%)	12 (12%)	78 (11%)
- structured questionnaire	** 5 (0%)*	** 0 (0%)*	** 2 (1%)*	** 4 (2%)*	** 1 (1%)*	** 7 (1%)*
- interview	** 36 (3%)*	** 6 (2%)*	** 52 (19%)*	** 34 (14%)*	** 9 (9%)*	** 63 (9%)*
- focus group	** 5 (0%)*	** 0 (0%)*	** 1 (0%)*	** 6 (2%)*	** 1 (1%)*	** 3 (0%)*
Archival data	133 (12%)	261 (84%)	92 (33%)	65 (27%)	16 (16%)	29 (4%)
- printed materials	** 3 (0%)*	** 2 (1%)*	** 11 (4%)*	** 11 (5%)*	** 3 (3%)*	** 5 (1%)*
- public data	** 12 (1%)*	** 227 (73%)*	** 65 (24%)*	** 40 (16%)*	** 0 (0%)*	** 19 (3%)*
- web data	** 24 (2%)*	** 26 (8%)*	** 13 (5%)*	** 7 (3%)*	** 7 (7%)*	** 2 (0%)*
- user-generated data	** 93 (8%)*	** 4 (1%)*	** 3 (1%)*	** 7 (3%)*	** 6 (6%)*	** 3 (0%)*
Objective data	14 (1%)	2 (1%)	1 (0%)	22 (9%)	1 (1%)	0 (0%)
Simulation	0 (0%)	4 (1%)	1 (0%)	7 (3%)	0 (0%)	1 (0%)
Row total	1102 (100%)	310 (100%)	275 (100%)	244 (100%)	99 (100%)	729 (100%)

Note(s): * These studies only used the denoted method. It does not include mixed-method studies

Figure 3.
Research method by functional areas

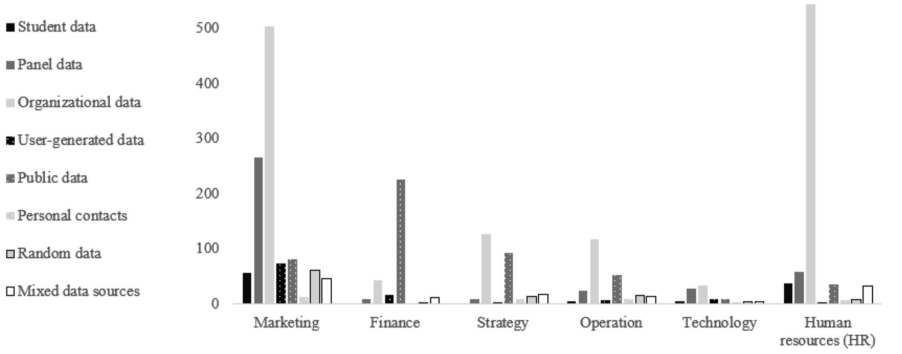
technology articles]), and qualitative methods (20% [56 out of 275 strategy articles]; 12% [12 out of 99 technology articles]). However, 24% (65 out of 275) of strategy articles used public data versus none of the technology articles used public data. Conversely, 16/275 (6%) of strategy articles versus 13/99 (13%) of technology articles used web data and user-generated data.

Data sources by functional areas

As shown in Figure 4, functional areas of research were related to the data sources. With marketing research had a good mix of different research methods, it also used diverse data sources. Organizational and panel data were most popular, accounting for 46% (503 articles) and 24% (266 articles) of marketing articles, respectively. However, marketing articles also use other data sources, including public data (7%, 82 articles), user-generated data (7%, 73 articles), student data (5%, 57 articles) and personal contact (1%, 13 articles). There were also 4% of marketing articles (46 articles) that used mixed data sources.

Organizational data were most commonly used in HR studies (74%, 543 articles). Around 8% of HR studies (59 articles) used panel data, 5% (38 articles) used student data and 5% (36 articles) used public data. However, other data sources, including random data (1%, 9 articles), personal contacts (1%, 8 articles) and user-generated data (1%, 4 articles), were seldomly used. Only 4% of HR studies (32 articles) used mixed data sources.

Since finance mainly uses archival data as a research method, public data were the most commonly used data source (73%, 226 articles). In addition, there were 14% of finance studies (44 articles) used organizational data. Finance studies seldom use other data sources, including user-generated data (5% 16 articles), mixed data sources (4%, 12 articles), panel data (3%, 10 articles) and random data (1%, 2 articles). No finance studies used personal contact or student data. The top four data sources used in technology studies were organizational data (34%, 34 articles), panel data (29%, 29 articles), user-generated data (10%, 10 articles) and public data (10%, 10 articles). The usage of student data (5%, 5 articles),



	Marketing	Finance	Strategy	Operation	Technology	Human resources (HR)
Student data	57 (5%)	0 (0%)	2 (1%)	5 (2%)	5 (5%)	38 (5%)
Panel data	266 (24%)	10 (3%)	9 (3%)	24 (10%)	29 (29%)	59 (8%)
Organizational data	503 (46%)	44 (14%)	127 (46%)	117 (48%)	34 (34%)	543 (74%)
User-generated data	73 (7%)	16 (5%)	3 (1%)	7 (3%)	10 (10%)	4 (1%)
Public data	82 (7%)	226 (73%)	92 (33%)	53 (22%)	10 (10%)	36 (5%)
Personal contacts	13 (1%)	0 (0%)	10 (4%)	10 (4%)	3 (3%)	8 (1%)
Random data	62 (6%)	2 (1%)	14 (5%)	15 (6%)	4 (4%)	9 (1%)
Mixed data sources	46 (4%)	12 (4%)	18 (7%)	13 (5%)	4 (4%)	32 (4%)
Total	1102 (100%)	310 (100%)	275 (100%)	244 (100%)	99 (100%)	729 (100%)

Figure 4.
Data sources by functional areas

random data (4%, 4 articles) and personal contacts (4%, 4 articles) were not common in technology articles. There were also only 4% of technology articles (4 articles) that used mixed data sources.

Both strategy and operations studies feature the use of organizational data (strategy: 46% [127 articles]; operations: 48% [117 articles]) and public data (strategy: 33% [92 articles]; operations: 22%, 53 articles). Strategy and operations studies seldom used random data (strategy: 5%, 14 articles; operation: 6%, 15 articles), personal contact (strategy: 4%, 10 articles; operation: 4%, 10 articles) and student data (strategy: 1%, 2 articles; operations: 2%, 5 articles). While panel data were not common in strategy (3%, 9 articles), it was common in operations (10%, 24 articles). Mixed data source was also uncommon in strategy (7%, 18 articles) and operation (5%, 13 articles).

Geographic regions overtime

RQ4 investigates the research intensity in different geographic regions. Despite increased emphasis on globalization, Table 6 showed that the portion of studies conducted in the various geographic regions remained relatively stable over time. Results showed that most articles used data from North America (1,119 articles, 41%) and Asia (979 articles, 35%). European data articles increased slowly from 12% (22 articles) in 2010 to 16% (77 articles) in 2019. Overall, there was 14% of the articles used European data (387 articles). Unfortunately, there was only a handful of studies using data from Oceania (3%, 94 articles), Africa (1%, 37 articles) and Latin America (1%, 19 articles) in the 2010s. Less than ten articles were from Latin America and Africa each year, representing around 0–2% of the analyzed articles. There was a drop in multi-region articles from 2010 (6%, 10 articles) to 2014 (2%, 6 articles). However, the number of multi-regions articles increased steadily since 2015 (4%, 11 articles). As a result, 7% of the 2019 articles (33 articles) used data collected from two or more geographic regions.

Research methods by geographic regions

Figure 5 answers RQ5 by showing the research method used in different geographic regions. Geographic regions had different research method usage patterns ($\chi^2_{df=91} = 572.74$, $p < 0.01$), suggesting that the usage of hospitality research can differ across geographic regions. It is worth noting that user-generated data were collected from all six geographic areas and contributed 10% of the multi-region articles (13 articles).

Researchers used a variety of methods to collect data from North America. It had a low reliance on survey research (40%, 453 articles) and has a good mix of experiments (20%, 223 articles) and archival data (28%, 311 articles). It also used all other methods, including qualitative studies (5%, 56 articles), objective data (2%, 25 articles) and simulation (1%, 5 articles). Indeed, researchers collected 62% (223 out of 360) of the public data studies from North America.

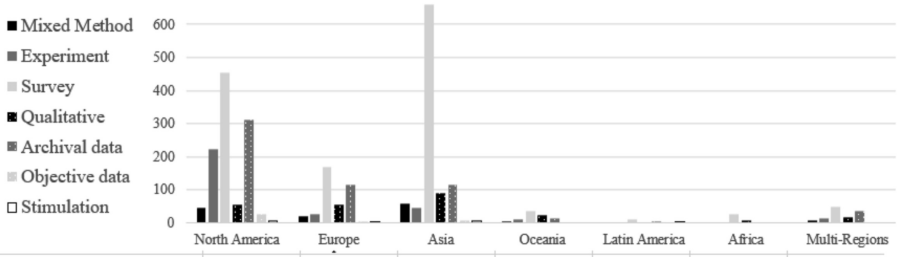
Despite the relatively low usage of experiments (7%, 26 articles), data collected from Europe originates from a good mix of methods, including survey (43%, 168 articles), archival data (29%, 114 articles) and qualitative studies (14%, 54 articles). Furthermore, it also contributes to the usage of mixed method (5%, 19 articles), objective data (1%, 4 articles) and simulation (1%, 2 articles). Thus, the results indicating that the development of the research methods was quite sophisticated in Europe. Interestingly, Oceania had the lowest reliance on surveys (37%, 35 articles) and the highest reliance on qualitative studies (25%, 24 articles). Similar to North America and Europe, Oceania also had a good balance of experiments (13%, 12 articles), archival data (16%, 15 articles) and objective data (3%, 3 articles).

Although Asia also used all research methods, it relied on surveys (67%, 660 articles). On the other hand, there was a relatively small portion of archival data (12%, 114 articles),

Table 6.
Original hospitality empirical research conducted in different regions over time

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Row total
North America	69 (39%)	92 (42%)	103 (44%)	103 (37%)	99 (39%)	95 (38%)	110 (42%)	116 (42%)	133 (41%)	199 (41%)	1,119 (41%)
Europe	22 (12%)	26 (12%)	30 (13%)	33 (12%)	41 (16%)	39 (16%)	35 (13%)	34 (12%)	50 (15%)	77 (16%)	387 (14%)
Asia	63 (35%)	77 (35%)	82 (35%)	108 (39%)	94 (37%)	97 (39%)	88 (34%)	93 (33%)	116 (36%)	161 (33%)	979 (35%)
Oceania	11 (6%)	13 (6%)	7 (3%)	12 (4%)	9 (4%)	3 (1%)	9 (3%)	11 (4%)	7 (2%)	12 (2%)	94 (3%)
Latin America	0 (0%)	1 (0%)	2 (1%)	3 (1%)	2 (1%)	1 (0%)	2 (1%)	4 (1%)	1 (0%)	3 (1%)	19 (1%)
Africa	3 (2%)	2 (1%)	4 (2%)	6 (2%)	1 (0%)	2 (1%)	5 (2%)	5 (2%)	3 (1%)	6 (1%)	37 (1%)
Multi-regions	10 (6%)	8 (4%)	5 (2%)	10 (4%)	6 (2%)	11 (4%)	12 (5%)	16 (6%)	13 (4%)	33 (7%)	124 (4%)
Column total	178	219	233	275	252	248	261	279	323	491	2,759

Note(s): Percentages in brackets () are the percentage of column total



	North America	Europe	Asia	Oceania	Latin America	Africa	Multi-Regions
Mixed-method	46 (4%)	19 (5%)	58 (6%)	5 (5%)	3 (16%)	1 (3%)	6 (5%)
Experiment	223 (20%)	26 (7%)	45 (5%)	12 (13%)	0 (0%)	0 (0%)	14 (11%)
*- Scenario**	*166 (15%)*	*8 (2%)*	*35 (4%)*	*11 (12%)*	*0 (0%)*	*0 (0%)*	*5 (4%)*
*- Field**	*14 (1%)*	*16 (4%)*	*5 (1%)*	*1 (1%)*	*0 (0%)*	*0 (0%)*	*1 (1%)*
*- Quasi**	*41 (4%)*	*2 (1%)*	*5 (1%)*	*0 (0%)*	*0 (0%)*	*0 (0%)*	*8 (7%)*
Survey	453 (40%)	168 (43%)	660 (67%)	35 (37%)	10 (53%)	27 (73%)	49 (40%)
Qualitative (Total)	56 (5%)	54 (14%)	91 (9%)	24 (26%)	1 (5%)	6 (16%)	18 (15%)
*- Structured questionnaire**	*10 (1%)*	*2 (1%)*	*7 (1%)*	*0 (0%)*	*0 (0%)*	*0 (0%)*	*0 (0%)*
*- Interview**	*36 (3%)*	*45 (12%)*	*72 (7%)*	*23 (24%)*	*1 (5%)*	*6 (16%)*	*17 (14%)*
*- Focus group**	*7 (1%)*	*5 (1%)*	*3 (0%)*	*0 (0%)*	*0 (0%)*	*0 (0%)*	*1 (1%)*
Archival data (Total)	311 (28%)	114 (29%)	114 (12%)	15 (16%)	4 (21%)	2 (5%)	36 (29%)
*- Printed materials**	*16 (1%)*	*4 (1%)*	*11 (1%)*	*1 (1%)*	*1 (5%)*	*1 (3%)*	*1 (1%)*
*- Public data**	*223 (20%)*	*66 (17%)*	*58 (6%)*	*5 (5%)*	*0 (0%)*	*0 (0%)*	*11 (9%)*
*- Web data**	*20 (2%)*	*24 (6%)*	*20 (2%)*	*3 (3%)*	*1 (5%)*	*0 (0%)*	*11 (9%)*
*- User-generated data**	*50 (4%)*	*20 (5%)*	*24 (2%)*	*6 (6%)*	*2 (11%)*	*1 (3%)*	*13 (11%)*
Objective data	25 (2%)	4 (1%)	7 (1%)	3 (3%)	0 (0%)	1 (3%)	0 (0%)
Simulation	5 (0%)	2 (1%)	5 (1%)	0 (0%)	1 (5%)	0 (0%)	0 (0%)
(% of all analyzed articles)	1119 (41%)	387 (14%)	980 (36%)	94 (3%)	19 (1%)	37 (1%)	123 (5%)

Note(s): * These studies only used the denoted method. Therefore, it does not include mixed-method studies

Figure 5.
Research method by geographic regions

qualitative studies (9%, 54 articles), mixed method studies (6%, 19 articles), experiments (5%, 26 articles), objective data (1%, 4 articles) and simulation (1%, 2 articles). Such reliance on survey research was similar to other developing regions, such as Latin America (53%, 10 articles) and Africa (73%, 27 articles). Researchers collected archival data (21%, 4 articles) and a mixed method study (16%, 3 articles) in Latin America. On the other hand, some qualitative studies were collected in Africa (16%, 6 articles). Only one qualitative study (5%) and one simulation (5%) were collected from Latin America. Similarly, researchers only collected one mixed method study (3%), one objective data (3%) and two archival data (3%) in Africa. However, no experiment was collected from Latin America or Africa.

Data sources by geographic regions

Table 7 illustrates the data sources by geographic regions. Although North America and Asia contribute the most data, the types of data they contribute can be very different. For example, while North America contributes the most student data (64%, 69 out of 107 articles), panel data (76%, 300 out of 397 articles) and public data (52%, 257 out 499 articles), Asia contributes the most organizational data (50%, 687 out of 1,368 articles), personal contacts (59%, 26 out of 44 articles) and random data (48%, 51 out of 106 articles). Of the 133 studies using user-generated data, 46% originated from North America (52 articles), 19% from Europe (22 articles), 18% from Asia (20 articles), 4% from Oceania (4 articles), 2% from Latin America (2 articles) and 1% from Africa (1 article). Researchers also collected 11% of the user-generated data from multi-region (11 articles), indicating that it can be possible to conduct multi-region research. In the next section, we discuss the implications of the result of this study and make recommendations for the journal editors, researchers and institutions. Additionally, we address the limitations of this project.

Table 7.
Data sources by geographic regions

	Student data	Panel data	Organizational data	User-generated data	Public data	Personal contacts	Random data	Mixed data sources
North America	69 (64%)	300 (76%)	359 (26%)	52 (46%)	257 (52%)	6 (14%)	29 (27%)	47 (38%)
Europe	9 (8%)	16 (4%)	194 (14%)	22 (19%)	105 (21%)	4 (9%)	15 (14%)	22 (18%)
Asia	17 (16%)	46 (12%)	687 (50%)	20 (18%)	93 (19%)	26 (59%)	51 (48%)	40 (32%)
Oceania	4 (4%)	11 (3%)	46 (3%)	4 (4%)	12 (2%)	4 (9%)	5 (5%)	8 (6%)
Latin America	0 (0%)	1 (0%)	9 (1%)	2 (2%)	4 (1%)	0 (0%)	2 (2%)	1 (1%)
Africa	1 (1%)	2 (1%)	26 (2%)	1 (1%)	3 (1%)	1 (2%)	3 (3%)	0 (0%)
Multi-regions	7 (7%)	21 (5%)	47 (3%)	12 (11%)	25 (5%)	3 (7%)	1 (1%)	7 (6%)
Total	107 (100%)	397 (100%)	1,368 (100%)	113 (100%)	499 (100%)	44 (100%)	106 (100%)	125 (100%)

Discussion, recommendations and conclusion

This study analyzed research methods and data sources of 2,759 original hospitality research articles published in the top five hospitality journals from 2010 to 2019. As research methods can be a proxy of research rigor, they illuminated the overall progression of the research development. By focusing on five journals, six functional areas and seven geographic regions over the last decade, we showed that hospitality research had developed significantly over the last decade. First, the results indicate a continuing trend of increasing empirical studies in hospitality research: the portion of empirical studies increased from 32% in 1990–1996 (Baloglu and Assante, 1999, which analyzed the same five journals) to 82% in 2000–2005 (Rivera and Upchurch, 2008, which focused on IJHM only) and 85% in 2010–2019 as selected in this study.

As technology had enabled new research methods (e.g. user-generated data) and new data sources (e.g. online panel data), there was growing diversity in the research methods employed. There was a slight increase in qualitative research in the mid-2010s. This change could be attributed to the launching of designated special qualitative sections in IJHM in 2018 (Elsevier, 2017), indicating that journals' special issues can impact researchers' method choices. Recent calls of specific research methods, such as experiments (Fong *et al.*, 2016) and user-generated data (Lu and Stepchenkova, 2015), increased the usage of these methods and decreased reliance on the survey. However, as in the 1990s (Baloglu and Assante, 1999), objective data and simulation remain minimal, suggesting potential new avenues. Thus, the research method and data sources usage depend on journal editorial decisions and the calls from prolific scholars.

Overall, these results suggested that hospitality research in the 2010s was more advanced and diversified than in previous decades. The portion of survey studies across the 2010s was significantly lower than previously reported (e.g. Baloglu and Assante, 1999; Law *et al.*, 2012). Compared with Baloglu and Assante (1999), which use the same list of five journals, the reliance on surveys dropped from 80 to 51% during the period of 1990–2010s. However, surveys remained to be the most popular research method in the 2010s. While hospitality research was using the new technology-enabled method, such as website data and user-generated information, the use of objective data and simulation remains minimal.

However, the technology also results in new threats, as seen in the decreased usage of organizational data and increased reliance on panel data. One possible reason is the availability of online panels, such as Amazon MTurk, Qualtrics Panels and SurveyMonkey online panels. Although panel data provide easy access to the diverse sample (MTurk, 2017), organizational data can provide richer contexts for researchers to understand the implications of the studies.

The developing trend of using diverse methods was not the same in all functional areas. Similar trends can be seen in the data sources because data sources and research methods are highly related. Together, the results showed that functional area was related to the research method used, and each functional area varied in terms of developments in research techniques. Unfortunately, the results indicate that some functional areas develop faster than other functional areas. While marketing and operational research contribute to the diversity of the research method used, other functional areas, such as HR and finance, continued to use the same method (survey with organizational data; archival data with public data) as in the 1990s. Because finance and HR were the second and third most popular functional areas, the primary usage of archival data in finance articles and surveys in HR articles may explain the popularity of survey and public data in all hospitality research.

Compared with Shen *et al.* (2018), our results showed that the geographical landscape of hospitality research did not change much over the years – the majority of the studies used data from North America and Asia. Oceania, Latin America and Africa remained underrepresented in the five hospitality journals focused on this research. The results

indicate that the findings yield in hospitality research from these five journals may be more applicable to North America and Asia. However, the findings from these five journals may have limited generalizability to developing geographic regions, such as Oceania, Africa and Latin America. One plausible explanation would be that most established hospitality schools are in the USA, Asia, and Europe, and all five journals are US-based. Geographic regions were related to the research method used, which may be attributed to the training and the differential norms of the preferred method in the culture (Shen *et al.*, 2018). Geographic regions also provide different data sources. Aside from language and training, the differences across geographic regions can be attributed to legal requirements (Benoit *et al.*, 2019). For example, while getting data from organizations in North America requires corporate legal approval, getting such data in Asia is usually a regional office decision (Benoit *et al.*, 2019). Similarly, although most North American publicly traded organizations are required to share their financial information, the sharing requirements can be different in Asia (SEC, 2020). However, user-generated data across all geographic regions suggest that this new research method can be a potential avenue for collecting data in different geographic regions, which may be difficult for traditional research methods.

Finally, due to the difficulties of using a mix-method or collecting data from multiple geographic areas, only a small portion of articles used mixed method (6%, 158 articles) or collected data from multiple geographic regions (4%, 124 articles). Unfortunately, this suggests that the hospitality research method has not improved significantly since previous content analyses work in the past two decades (e.g. Baloglu and Assante, 1999; Law *et al.*, 2012). Therefore, as researchers, we need to spark new conversations by diversifying our research methods and study designs. Drawing on the above findings, we made a few recommendations to the hospitality editors and researchers.

Recommendation for editors: Be open to nontraditional research methods

To stimulate research method diversity, editors should be more open to other research methods that have seldom been used in the functional areas. For example, several mainstream studies suggested that experimental designs can be utilized to extend finance (e.g. Libby *et al.*, 2002; Karlan, 2005) and HR research (e.g. Aguinis and Bradley, 2014; Podsakoff and Podsakoff, 2019). Therefore, we encourage editors to create a special section on mixed method articles. They can also call for nontraditional methods in special issues (e.g. nonsurvey research in HR or nonarchival data research in finance), thus allowing for exemplar studies that show interesting and potentially different results by using unconventional methods.

Recommendation for researchers: use new tools to conduct research

It is important to note that each research method diverges in its generalizability, realism and measurement precision (Baloglu and Assante, 1999). Thus, we reiterate Baloglu and Assante's (1999) recommendation for researchers to use multiple research methods in their studies. Specifically, we encourage researchers to consider adding qualitative analysis into quantitative research. For example, researchers can use a qualitative study to showcase the decision-making process and explains quantitative results. We also encourage researchers to use more qualitative research in finance and marketing.

Technology also enables researchers to have more research methods to conduct research. Our results showed that the utilization of user-generated data was on the rise. However, this rise was mainly limited to marketing research. Researchers from other functional areas can learn from their marketing peers and use more user-generated data. For example, HR researchers can use online employee reviews (e.g. Glassdoor and Indeed) to understand employee outcomes (Stamolampros *et al.*, 2020). Similarly, researchers can use traditional

methods (e.g. qualitative) to analyze data from newer methods (e.g. review comments data from user-generated data).

The use of objective data remains minimal in the 2010s. However, this can be changed with the availability of wearable technology and smart-home technology. For example, operations research can use auto-generated data from smart-home devices (e.g. smart thermostats) to improve operational efficiency (Nadkarni *et al.*, 2019). In addition, by using both traditional methods (e.g. survey and experiment) and newer technology (e.g. wearable technology), researchers test more interesting research questions related to the personal well-being of guests and employees (Massaro and Pecchia, 2019), as well as to understand workplace relationships (Chaffin *et al.*, 2017).

We challenge researchers to consider different data sources. Although technology facilitates the use of online panel data (e.g. MTurk), which provides cheap and easy access to the diverse sample (Aguinis *et al.*, 2021), we encourage researchers to keep using field research (e.g. organizational data) such that researchers would be able to know more contextual information (e.g. organizational background) from organizations and provide practical implications to organizations that provide data access (Tracey, 2020).

Recommendation to institutions: conduct research globally

Since each culture has its unique values, the findings from one geographic region may not be generalizable to other regions (Hofstede, 2001). Thus, in line with Law *et al.* (2012), we call for more research in traditionally ignored geographic areas, such as Oceania, Latin America and Africa. In particular, the hospitality industry in Africa and Latin America has developed dramatically in the last few years (Benzitouni and Wawira, 2019; Schmitt and Cruz, 2018). It presents unique HR, strategy and operations research (Aguinis *et al.*, 2020). We recommend interinstitutional collaboration such that seasoned researchers establish research collaborations with local researchers in Latin America and Africa. This will facilitate the progression of hospitality research. Moreover, it will allow researchers to develop culture-specific research in these developing regions.

Limitations and future research

This study synthesizes the research method used in original hospitality research in the 2010s. Although we addressed several issues, some other vital issues are out of the scope of this research and warrant future research attention. First, we did not include a content analysis of statistical-related issues due to space constraints, such as sample size, level of measurement and analyses. Future research can compare statistical usage and identify potential analytical recommendations. Second, our content analyses excluded tourism articles and research method articles. Some research methods and data analyses articles provide sample studies to illustrate the method/analyses. Although it only accounts for 48 articles, these articles usually showcase newer methods. Thus, our results may underestimate some of the usages of newer methods. Third, we limited our content analyses to research articles published in five journals. The results cannot be generalized to articles that are not conducted but not accepted in the five journals. It is unclear whether editorial decisions or authors' preferences caused the changes in the method used. Although the five journals have a general focus, the background of editors may change editorial decisions, favoring articles of specific functional areas, research methods and data sources used. A comparison of the journals, SSCI journals and non-SSCI journals may provide a more comprehensive understanding of the hospitality research development in terms of the research methods used.

Fourth, our study focused on a systematic description of the method and data sources usage over time. It does not provide an in-depth description of how the method changes over time. However, empirical studies are getting more sophisticated. For example, survey

research has changed from a cross-section self-report survey to multi-level, multi-source, multi-wave and longitudinal surveys (Dolnicar, 2018). Similarly, more realism checks are used in experiments (Fong *et al.*, 2016). We encourage future research to focus on each method and describe how the method changes over time. Finally, the COVID-19 pandemic may make some research methods that rely on face-to-face interactions (e.g. face-to-face interview/focus-group) impossible. Since some organizations can be focusing on dealing with the pandemic, they may be unwilling to collaborate with research, making data collection in organizations more difficult. Future research can expand our study and understand how the COVID-19 pandemic affects the research method used.

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