Hospitality and Tourism Online Review Research: A Systematic Analysis and Heuristic-Systematic Model

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Abstract: With tremendous growth and potential of online consumer reviews, online reviews of hospitality and tourism are now playing a significant role in consumer attitude and buying behaviors. This study reviewed and analyzed hospitality and tourism related articles published in academic journals. The systematic approach was used to analyze 55 research articles between January 2008 and December 2017. This study presented a brief synthesis of research by investigating content-related characteristics of hospitality and tourism online reviews (HTORs) in different market segments. Two research questions were addressed. Building upon our literature analysis, we used the heuristic-systematic model (HSM) to summarize and classify the characteristics affecting consumer perception in previous HTOR studies. We believe that the framework helps researchers to identify the research topic in extended HTORs literature and to point out possible direction for future studies.

Keywords: hospitality and tourism online reviews; content analysis; smart tourism; systematic review; heuristic-systematic model

1. Introduction

Hospitality and tourism online reviews (HTORs) have been recognized as influencing consumer decision-making and are seen as a valuable information-based asset. Heretofore, a number of researchers have conducted studies on various features and characteristics of HTORs to evaluate their impact on consumer perceptions. HTOR platforms such as TripAdvisor, Yelp and Dianping enable consumers to post their comments on various travel-related products and/or services (e.g., restaurant and hotel experiences) via online, and these reviews elicit high credibility and reliance in comparison with information provided by third party and vendors of products [1–3]. Therefore, those are not only a useful co-creation tool for other tourists, but also a crucial source of marketing information about tourism experiences for the service providers [4,5]. With the increased level of consumer co-creation, HTORs are regarded as social capital providing experiential and economic benefits, and this online popularity is of great importance; it may reflect the potential demand for travel-related products innovations in the future [6]. Increasing the number of these platforms shows a paradigm shift in terms of destination management, giving power to consumer communities. Furthermore, such a useful paradigm framework has brought a crucial dimension to co-creation and co-production in parts of the tourism industry in smart destinations, which are special cases of smart cites.

The soft smartness components such as information sharing within a service-dominant logic ecosystem holds the potential for sustainability of smart tourism destinations by providing the competitive advantage of quality of life/visits, both for residents and tourists [7–9]. In terms of smart tourism, it is referred to "as simply taking a holistic, longer term and sustainable approach to planning, developing, operating and marketing tourism products and businesses (p. 294)" [10]. To be more specific, the effective management of HTOR information points to a potential advantage serves

as a strength for the long-term sustainability of the smart tourism destination. Thus, HTORs, which are special cases of an information-based asset, are essential for the viability of smart tourism, including economic and environmental sustainability [11].

A number of researchers have conducted studies on various features and characteristics of HTORs in order to evaluate their impact on consumer perceptions. Due to the rise in the popularity of importance of HTORs, several researchers have reviewed the recent HTORs studies by using content analysis method to analyze targets on academic output [12,13]. For instance, Schuckert et al. [13] analyzed articles related to HTORs in published in academic journals. They classified 55 articles between 2004 and 2013 and focused on five topics: "(1) online reviews and online buying; (2) satisfaction and management; (3) opinion mining/content analysis; (4) motivation; and (5) the role of reviews" (p. 610). They also analyzed the context and provided the understanding the type of industry. Kwok et al. [12] analyzed 67 research articles about online reviews published between January 2000 and July 2015 in major hospitality and tourism journals. Kwok et al. [12] presented a brief discussion on the typical features (i.e., quantitative evaluation features, verbal evaluation features, reputation features, and social features) of some popular online review. According to prior research work, studies on the HTORs can be analyzed and identified into two dimensions: topic focus and key features in the online review phenomenon.

These previous studies have contributed to intuitively classifying existing research by presenting the major five topics and key features of HTORs. However, an integrative framework of the impact of HTOR characteristics on consumer behavior, and the propositions concerning the information processing among the key factors of HTORs is limited. Therefore, the aim of this study is to provide a systematic review of the research on HTORs in order to fill in the previous research gap. The purpose of this study is to deliver a clear understanding of what previous researchers have done on HTORs concerning the impact of HTOR characteristics, and the integrative framework of heuristic-systematic process on HTORs. Thus, we formulated two main research questions as follows: (1) What have hospitality and tourism researchers done on HTORs with regards to the impact of HTOR characteristics? (2) What is the heuristic and/or systematic process of influencing factors on review usefulness/helpfulness in HTORs?

Unlike prior studies, this paper deals with the impact of HTOR factors (i.e., source factor, review factor, context factor and receiver factor) based on business-to-consumer setting and focuses on the heuristic and systematic processing on HTORs. We also complemented the most recent 39 articles in published in academic journals in order to reflect the explosive growth of HTOR studies after 2014. Research findings will provide new insights to the interactions between consumers and managers and deliver a clear understanding of the development of HTOR research and an overall perspective for future research.

2. Literature Background

The Importance of Hospitality and Tourism Online Review (HTOR)

Because tourism is an information-intensive industry, it is critical to understand the impact of HTORs and changes in technology and consumer behavior [3,14]. The rapidly growing popularity of online consumer review platforms, the online reviews of hospitality and tourism are now playing an increasingly important role in consumer attitude and purchasing intention [15–18]. With the increased level of consumer engagement in online review, HTORs are regarded as social capital which provides experiential and economic benefits, and theses online popularity is of great importance, because it may reflect the potential demand for travel-related products innovations in the future [6]. HTORs are now available for many segments of products, including destinations (e.g., city, rural), attractions (e.g., beach and museum), accommodations (e.g., hotels, guest house and retreats), amenities (e.g., restaurants, bar and nightlife club) through various channels such as blogs, online stores, electronic Word-of-Mouth (eWOM) forums, social network websites or travel-related information

platforms. Research on the impact of online consumer reviews can be classified into market-level and individual-level approach [19]. This study includes market-level as well as individual-level HTORs of travel-related information platforms such as TripAdvisor, Yelp because HTORs allow firms to play crucial roles in online review communication setting by being observers, mediators, moderators, or participants.

It is common that the academic community, as well as industry practitioners, are of the belief that the essence of tourism is the tourist experience [20]. The essence of recent tourism is the development of tourism experiences as practices, activities to see, understand and feel the nature of unique destinations and the way people live, think, and enjoy life in those attractive destinations [21,22]. Pine and Gilmore [23] defined as "the experience economy", which emphasized the mass customization of experience design and delivery must be diffused into entire organization. In the tourism context, providing unique and memorable tourism experiences are most important for tourism service suppliers in order to obtain competitive edge [24].

It has been generally stated that experiences are an increasingly essential source of value co-creation. The co-creation of tourists' experience entails not only personalized experience customization by tourists, but also the increasing involvement of all stakeholders and other tourists' experience sharing [25]. In this regard, a tourist experience is more than the sum of interactions with other determinants. Because creating unique experiences includes not only tourists' participation but also an interconnection with the other potential tourists to the experience [4,26]; this is particularly associated with the concept of co-creation. Due to the fact that tourists often share their travel experiences in travel-related information platforms, they create value for other tourists as well as for themselves, and the tourism product providers and destination marketing organizations. Travel-related information platforms allow tourists to post their reviews and opinions about tourism services (e.g., restaurant and hotel experiences), thus those are not only a useful co-creation tool for other tourists, but also a crucial source of marketing information about tourism experiences for the service providers [4,5]. Grissemann and Stokburger-Sauer [24] found that if tourists closely collaborate with tourism service agency and create a unique travel experience, they tend to pay more for their travel enrichment. Thus, the unique experience of individual tourist may pervade the whole smart destination that encourages tourists' purchase behavior. This development has shifted considerable power to customers. Boswijk et al. [27] argued that co-creation of personal and unique experiences is central to value co-creation.

In the co-creating process, tourism connected the stakeholders need to realize what is of value for the tourist and how smart destinations could enrich the tourism experience through providing products/services [28]. The task for the all stakeholders are to create meaningful and integrated experience environments [29] in which co-creation can lead to individualized and memorable experiences that are designed to face the needs of smart business eco-system. In a related vein, creating unique and robust experiences for tourists can exert a widespread concept in the destinations ecosystem. With the proliferation of destination competition, destinations are willing to find innovative ways to differentiate their tourism services and provide distinct experience value for the tourists [30].

3. Method

Systematic literature reviews are a key component of much academic research. The systematic literature review has been carried out in the several different phases to overcome some of the weaknesses and limitations of traditional literature reviews [31]. As you can see in Figure 1, we adopted a five-stage process as follows. Firstly, we identified research question(s)/objective and identified relevant literature. Literature was selected on the basis of their relevance to online reviews in the hospitality and tourism fields. Keywords for data screening were identified following Schuckert et al. [13] and Cheung and Thadani [19]. We did the search based on keywords including "online reviews", online consumer reviews", "e-wom", "online hotel reviews", "online restaurant reviews", "online destination reviews", "online recommendations", "hospitality", "tourism", "travel",

"user-generated contents". Secondly, we made decisions about what research to include, exclude. Employing the guidelines of the systematic review methodology [32], the inclusion criteria were the following: (1) HTOR was the main focus of investigation, and the terms "hotel", "destination", "attraction", "restaurant", "hospitality", "tourism" were used to search; (2) published in academic journals; (3) papers that stated impacts of online reviews; (4) publication had a defined sample data; and (5) publications were related to business-to-consumer level. The exclusion criteria were following: (1) publications with a conceptual or no research design; and (2) papers that focused on recommendation system agent. Thirdly, the data retrieval was conducted in April 2016, and repeated in January 2018 on the seven largest and most popular online databases/search engines such as Science Direct, EBSCOHOST, Springer, IEEE Xplore, ACM, Emerald, and Google Scholar [13]. A total of 55 HTOR-related articles between 2008 and 2017 were identified and analyzed. Since there is a plenty of personal bias affecting the process, therefore, the consensus of multiple authors, all of whom are experienced researchers in tourism and e-business, should have acted as a safeguard to minimize the bias [13,33]. Fourthly, after judging the quality and relevance of the research, we classified the impact of HTOR characteristic and heuristic and systematic processing of each article. Finally, we synthesized findings into the heuristic and systematic information processing on HTORs to focus on answering the research questions and also discussed the extant study domain, methodological and theoretical contributions.
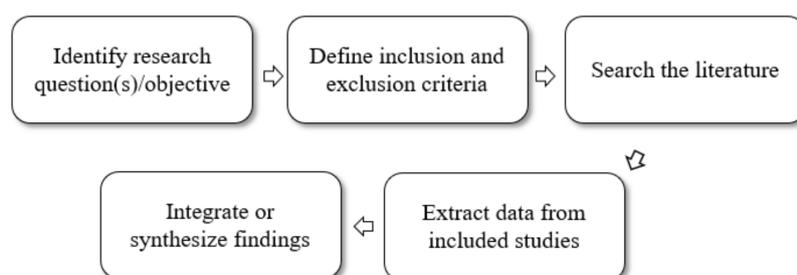

Figure 1. Phases of systematic literature review process.

4. Descriptive Results

4.1. Review Domains

Table 1 summarizes the domain of HTORs that have attracted the interest of researchers. One can clearly find that the accommodation industry attracts the attention of most researchers (*n* = 35), accounting for 63.6% of all the publications analyzed. The restaurant (*n* = 8, 14.5%) follows the accommodation and the destination (*n* = 3, 5.5%) and attraction (*n* = 1, 1.8%) domains are of relatively less concern. The dominant position of accommodations in HTOR research has attracted the attention of an increasing number of academics and practitioners [13].

Table 1. Analysis of industry domains of prior hospitality and tourism online review (HTOR) studies.

Research Domain	N	%	Studies
Destinations	3	5.5	[17,34,35]
Accommodations	35	63.6	[3,10,13,18,36–67]
Restaurants	8	14.5	[6,16,68–72]
Attractions	1	1.8	[73]
Overall tourism products	8	14.5	[13,31,74–79]

When planning a trip, tourist destinations and attractions is the first-choice product. Therefore, more research is needed regarding the effect of online destination/attraction reviews and the key characteristics affecting consumer evaluation in the future.

4.2. Methodological Review

Table 2 summarizes the results of methodological analysis. 27 (49.1%) studies use secondary data to investigate the impact of characteristics on consumer perception, adoption of reviews, or sales based on an empirical or content analysis. 14 (25.5%) employ experimental design to investigate purchase intention, booking intention or customer behavior. 7 (12.7%) employ primary data to study review credibility or motivation. More than half of the studies employ secondary data from travel-related review sites such as TripAdvisor, Yelp, Dianping, Ctrip or Qunar. TripAdvisor and Yelp are the most dominant travel-related review sites within a global—level, whereas Dianping, Ctrip and Qunar are Chinese opinion online review sites. Relatively, 7 (12.7%) of articles employ a qualitative method focused on review trustworthiness or review manipulation by employing the grounded theory or content analysis. Schuckert et al. [13]'s study was one of the few research papers that focused on the analysis and review of the articles related to HTORs. Quantitative studies were more dominant, representing 87.3% of all publications.

Table 2. Methodological analysis of prior HTOR studies.

Method	N	%	Studies
Qualitative: Grounded theory, Content analysis	7	12.7	[13,37,38,48,67,76,80]
Experimental: ANOVA	14	25.5	[17,18,34,41,46,49,55,56,58–60,68,75,78,81]
Empirical (secondary data): Regression, ANOVA, Estimation method	27	49.1	[3,6,13,16,35,40,42–45,47,53,54,57,61–67,70,71,73,77,79]
Empirical (survey): SEM, ANOVA	7	12.7	[36,39,51,69,72,74]

Recently, the dominant feature of the field of research methods has been the popularity of using real-world secondary data. Since this method accurately reflects the consumers' evaluation in real-world settings in a satisfying manner [63], it can overcome the manipulated condition in the experiment. It also has the advantage of being able to derive various insights that can be applied in real industries.

4.3. Theoretical Foundation Review

Table 3 summarizes the theories employed in previous HTORs studies. Among the 28 HTORs papers addressed theory foundation, the theory of information processing such as the information processing theory, cognitive load theory, social information processing theory, the Elaboration Likelihood Model: ELM [82] and the Heuristic-Systematic Model: HSM [83] was the most commonly used theoretical foundation in the study of impact of HTOR. In addition, motivation theory was adopted to explain the consumer behavior. Source credibility was employed to explain the characteristics of HTORs communication. Finally, qualitative studies adapted the grounded theory to explore new categories that have not been anticipated.

From these results, we found that HTORs research contributes to the theoretical development in the field of tourism and hospitality. It is expected that HTOR research can only re-examine existing theories by using real-world data but can also be developed into an integrated theory or advanced discipline.

Table 3. Theoretical foundations of prior HTOR studies.

Theory	Studies
Cognitive load theory	[64]
(Source) Credibility theory	[60,61,80]
Motivation theory	[16,36,70]
Technology adoption model (TAM)	[36,72]
Heuristic–systematic model (HSM)	[3,58,84]
Elaboration likelihood model (ELM)	[16,55,74,81]
Consideration set theory	[59]
Information processing theory	[16]
Theory of information diagnosticity	[16,70]
Grounded theory	[76,80]
Cognitive-processing capacity theory	[66]
Social information processing theory	[68]
Negativity bias	[45]
Signaling theory	[71]
Zone of tolerance theory	[78]
Uncertainty reduction theory	[34]
Social identity theory	[34]
Persuasion theory	[58]
Attitude formation theory	[58]
Language expectancy theory	[18]
Cognitive evaluation theory	[70]
Prospect theory	[70,73]
Uses and gratification theory	[74]

5. Research Contexts Used in Current Literature

5.1. The Impact of HTOR Characteristics

By better understanding the impact of various HTOR characteristics, the brief synthesis of previous research on HTOR presented in Figure 2 indicates that are investigating the characteristics of HTOR in different market segments. The results of our systematic analysis are interpreted based on the authors' understanding of the research papers listed in Table 4. Four factors (i.e., review factors, source factors, and contextual factors) were classified investigating the impact of various HTOR characteristics. One can clearly see that "review manipulation", "credibility and trust in reviews" attracts the attention of most researchers (*n* = 8), "service quality and value", "consumer satisfaction", "review enjoyment", "review persuasiveness", "value of review", "adoption of reviews", "motivation to review" are relatively less concern.

5.1.1. The Characteristics of Source Factor

Source factor can be seen as an influential factor on persuasion outcomes. Sources (i.e., reviewer) should have credibility, attraction and share their profile on OHTR platforms. In human-to-human interaction context, the relevant source factors are mentioned as credibility, likeability, multiple sources [85,86]. The investigation of source characteristics has been focused on peer review evaluation and review credibility and relatively less concern compared to the review/message characteristics. Source factor includes identity cue, reputation/expertise cue. Most online review websites provide identity information of reviewers such as reviewers' name, location, photos are disclosed (whether these are real or not). The identity cue is a self-created cue showing their private information. The reputation cue (i.e., number of reviews, friends, fans or elite badge etc.) is system-generated information in the form of aggregated opinions receive as the collective endorsement by peers. For instance, how many peers rated the reviewer as useful or how many e-peers they have. Both types of cues are heuristic information about the reviewer and these play a role of establishment of credibility in the sources [87]. As a result, source information (e.x., name, address and photo) is an important cue in generating consumer's favorable perceptions or evaluations [88].
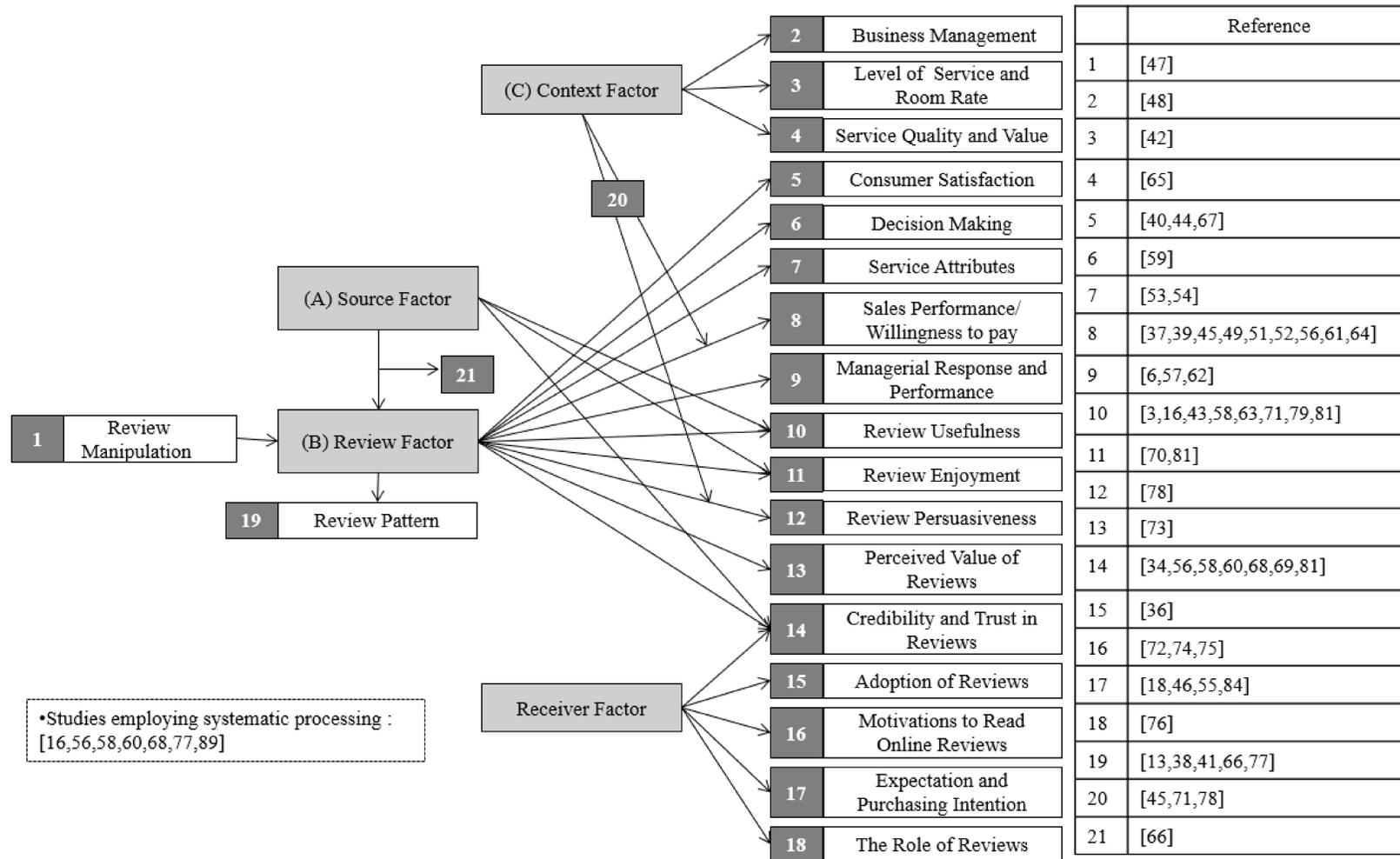
	Reference
1	[47]
2	[48]
3	[42]
4	[65]
5	[40,44,67]
6	[59]
7	[53,54]
8	[37,39,45,49,51,52,56,61,64]
9	[6,57,62]
10	[3,16,43,58,63,71,79,81]
11	[70,81]
12	[78]
13	[73]
14	[34,56,58,60,68,69,81]
15	[36]
16	[72,74,75]
17	[18,46,55,84]
18	[76]
19	[13,38,41,66,77]
20	[45,71,78]
21	[66]

Figure 2. The impact of HTOR characteristics.

Table 4. Previous studies on HTOR.

Reference	Review Domain (Platform)	Review Context and Data	Key Findings and Conclusion	Methodology	Article
[36]	Hotels (None)	●Context: cross-national heterogeneity in the adoption of OHRs ●Data: 1254 responses	●The complex cognitive mechanisms determining the acceptance of online hotel reviews in each country as moderated by national culture orientations	Survey Instrument (Structural Equation Model)	International Journal of Hospitality Management
[37]	Hotel, restaurant, and touristic attractions	●Context: generalizabiliity of online review items ●Data: 1050 hotels, 1000 restaurants, and 1044 tourist sites	●Negative valence reports have significant impact on restaurant reviews ●The customer semantic of reivew reports cannot be a representation of hotel, reaturants, and tourist sites	Text mining using SVM and LDA approches	International Journal of Contemporary Hospitality Management
[73]	Attractions (Tripadvisor)	●Context: to explore factors that affect the value of reviews. ●Data: 41,061 reviews for 106 attractions and 19,674 reviewers with historical rating	●Text readability and reviewer characteristics affect the perceived value of reviews	Empirical (Negative binomial regression & Tobit regression model)	Tourism Management
[80]	Travel (None)	●Context: how consumers assess trustworthiness and untrustworthiness of OTRs. ●Data: 38 interviews	●Consumers primarily use cues related to the message content and style and review extremity and valence to assess trustworthiness	Explorative-qualitative study by the grounded theory	Annals of Tourism Research
[38]	TripAdvisor.com	●Context: asymmetry of hotel ratings ●Data: 500 hotel reviews	●Dual valence reviews appear more in extremely negative ratings with a less frequency in a moderately negative rating ●Men post more dual-valence reviews than women	A content analysis	Journal of Hospitality Marketing & Management
[39]	Booking.com	●Context: effects of crowdvoting on hotels ●Data: 45,103 hotel opinions from booking.com and a 184 questiionnaire	●The direct and positive crowd has impact on the performance dimensions of hotels ●Negative reviews or votes have more influence on hotels	Data crawling and analyzed using PLS	International Journal of Contemporary Hospitality Management

Table 4. *Cont.*

Reference	Review Domain (Platform)	Review Context and Data	Key Findings and Conclusion	Methodology	Article
[40]	Travel(None)	●Context: extraction of dimensions of visitor satisfaction	●Identification of 19 dimensions for hotel-customer interaction	Empirical Latent Dirichlet Analysis (LDA)	Tourism Management
		●Data: 266,544 online reviews for 25,670 hotels located in 16 countries	●Perceptual mapping identifies key dimensions according to hotel star-rating		
[41]	TripAdvisor.com	●Context: opinion mining from online hotel reviews	●The summarized sentences using the top-k sentence can explain more understanding informaton on positive and negative reviews	Experiment using top-k information sentence	Information Processing & Management
		●Data: reviews of two selected hotels for 1 year 3 months			
[74]	A natioanl panel system	●Context: factors influencing social meida contiuance usage and informaton sharing intentions	●Argument quality promotes information seeking and entertainment motives	Online survey (SEM)	Tourism Management
		●Data: 384 data	●Source credibility positively influences information seeking, entertainment, and relationship maintainance triggering traveler's contiuance use intention of social media		
[42]	Hotels (Tripadvisor)	●Context: how consistent the posted reviews with the expected level of service and room rate	●Hotel classes and average daily rate (ADR), location appeared to have the highest mean value among seven performance attributes	Empirical (ANOVA)	Journal of Hospitality & Leisure Marketing
		●Data: 324 hotels	●Hotel classes (i.e., star ratings) and ADR appeared to influence the relationships of selected hotel performance attributes with both overall guest satisfaction and return		
[75]	Hotels (None)	●Context: the effects of cognitive, affective, and sensory attributes	●Consumers consider not only cognitive but also affective and sensory attributes	Experimental design (Random parameter logit modeling)	International Journal of Hospitality Management
		●Data: 494 responses			
[34]	Destinations (None)	●Context: the role of reviewer's identity and review valence	●A negative online review is deemed more credible than a positive online review	Experimental design	Journal of Vacation Marketing
		●Data: 639 travel consumers (Using systematic cues)	●A positive online review leads to a greater initial trust than a negative review.		

Table 4. *Cont.*

Reference	Review Domain (Platform)	Review Context and Data	Key Findings and Conclusion	Methodology	Article
[43]	TripAdvisor	●Context: roles of negative emotions in customers' perceived helpfulnes	●Negative reviews are more helpful	A text mining (Negative binomial regression)	International Journal of Contemporary Hospitality Management
		●Data: 530,668 data from 488 hotels in NYC	●When reviewer expressed intense negative emotions, the degree of helpfulness is diminished		
[81]	Hotels (Yelp)	●Context: the impact of reviewer's social network	●The size and composition of a reviewer's social network influence the peer evaluation votes	Empirical (Regression)	International Journal of Hospitality Management,
		●Data: 56,139 online reviews of the 100 hotels	●Reviewer's expert/elite social identity canmitigate the review negativity bias.		
[68]	Restuarants (Yelp)	●Context: the effects of review valence, the reviewer profile, and the receiver's familiarity with the platform (user/nonuser) on the perceived credibility	●The friends × reviews × platform familiarity interaction indirectly affected attitude through competence	Web-based experiment (ANOVA)	Journal of Computer-Mediated Communication
		●Data: 241 responses (Using systematic cues)	●Review valence was positively associated with perceived credibility and attitude		
[16]	Restaurants (Yelp)	●Context: a model explaining the perceived usefulness of online reviews	●Reviews with disclosure of reviewer's identity and high reputation are useful	Empirical (Tobit regression)	Tourism Management
			●Review ratings and review elaborateness positively affect the perceived usefulness		
		●Data: 5090 reviews of 45 restaurants (Using systematic cues)	●Enjoyment and readability of reviews have positive influences on the usefulness		
[45]	Hotels (Ctrip and Elong)	●Context: the moderating effect of hotel star rating on the relationship between OHRs and sales performance	●The average rating of online review and rating variance have a significant impact on sales	The estimation of count models	Journal of Electronic Commerce Research

Table 4. *Cont.*

Reference	Review Domain (Platform)	Review Context and Data	Key Findings and Conclusion	Methodology	Article
[69]	Restaurants (Dianping and Koubei)	●Context: the moderating role of sense of membership	●ORRs readers' sense of membership positively moderated argument strength, review sidedness and review rating's effects on review credibility	Survey (Linear regression model)	Information & Management
		●Data: 308 samples of eWOM forum	●A negative moderating effect on the relationship between review objectivity and review credibility		
[17]	Destinations (None)	●Context: the role of prior experience of a destination in ODRs	●The knowledge acquisition following exposure to ODRs tends to positively increase their perception about a destination	Aquasi-experimental design	Journal of Destination Marketing & Management
		●Data: 2505 responses			
[35]	Destinations (100,000 relevant travel blogs and OTRs websites)	●Context: the usefulness of bigdata analytics to support smart destinations	●Massive UGC data analytics is not only useful in revealing the image of a destination ingeneral, but also in obtaining insights concerning management issues at specific attractions	Quantitative content analysis	Journal of Destination Marketing & Management
		●Data: about 250,000 pages			
[46]	Hotels(None)	●Context: influence on expectations and purchasing intentions of hotel potential customers	●A positive correlation between both hotel purchasing intention and expectations of the customers and valence of the review	Experimental design	International Journal of Hospitality Management
[47]	Hotels (TripAdvisor and Expedia)	●Context: investigation of online review manipulation	●Promotional reviewing is likely to be highest for independent hotels that are owned by single-unit owners and lowest for branded chain hotels that are owned by multi-unit owners	The estimation of count models	The American Economic Review
		●Data: 2931 reviews			

Table 4. *Cont.*

Reference	Review Domain (Platform)	Review Context and Data	Key Findings and Conclusion	Methodology	Article
[48]	Hotels (None)	●Context: the impact of online reviews and social media on hotel business ●Data: five interviews with managers of hotels	●Online review management include five efforts: (a) creating a remarkable guest experience, (b) encouraging online reviews, (c) monitoring online reviews, (d) responding to online reviews and (e) acting upon attained information	Semi-structured interviews (Qualitative Study)	Tourism Management Perspectives
[49]	Hotels (None)	●Context: internal reference price & willingness to pay ●Data: 766 responses	●Consumers with high reference prices are more sensitive to the effect of an increase in valence ●The relevant role of reviews as well as internal reference price in determining consumers' WTP	Experimental design	International Journal of Hospitality Management
[76]	Holiday (None)	●Context: the adoption and processing of online holiday reviews ●Data: 22 mock sessions	●OTRs play a secondary, complementary role to holiday selection ●OTRs are subjected to a set of heuristics before being adopted and utilised	Explorative-qualitative study by the grounded theory	Tourism Management
[70]	Restaurants (Yelp)	●Context: the effect of review ratings on usefulness and enjoyment ●Data: 5090 reviews of 45 restaurants	●People perceive extreme ratings (positive or negative) as more useful and enjoyable than moderate ratings	The estimation of count models	Annals of Tourism Research
[51]	TrustYou	●Context: Impact of online reviews on hotel performance ●Data: Swiss country-level data from 68 online platforms and 442 hotels	● Positive voice about a hotel room is a significant contributor of a performance ● Positive experience voice via social media have the greatest impact on hotel demand	Survey (PLS-PM)	Journal of Travel Research
[77]	Travel (FlipKey)	●Context: the patterns and features of online reviews ●Data: 3197 reviews	●The reviews are heavily skewed towards positive ratings and there is a paucity of balanced and negative reviews ●Textual analysis uncovers nuanced opinions that are generally lost in crude numerical ratings	Empirical (ANOVA)	Journal of Hospitality Marketing & Management

Table 4. *Cont.*

Reference	Review Domain (Platform)	Review Context and Data	Key Findings and Conclusion	Methodology	Article
[71]	Three service categories: furniture stores, restaurants, beauty and spa (Yelp)	●Context: the recipients' perspectives in the context of various services ●Data: 3000 reviews (approx. 1000 each for the three service categories)	●A combination of both reviewer and review characteristics are significantly correlated with the perceived usefulness of reviews	OLS regression	Electronic Commerce Research and Applications
[52]	Hotel (TripAdvisor)	●Context: effect of brand on the impact of e-WOM on hotel performance ●Data: 34,164 reviews amd a panel data of hotel RevPAR	●The volume of reviews has no effect on RevPAR growth for branded chain hotels but a positive effect for independent hotels ●The interaction effect with yearly and cumulative volume of online reviews on RevPAR applied to non-branded hotels but not to branded chain hotels	Data crawling and analyzed using PLS	International Journal of Electronic Commerce
[53]	Hotels (Tripadvisor)	●Context: the comparative salience of six hotel attributes (value, service, rooms, sleep quality, location, and cleanliness) ●Data: 405 reviews	●'Value' and 'rooms' are the most important attributes that contribute to a high overall rating for the hotel	Conjoint analysis	Electron Markets
[54]	Hotels (Tripadvisor)	●Context: the comparative importance of the six hotel attributes (value, location, sleep quality, rooms, cleanliness, and service) ●Data: 1282 reviews of 4 hotels	●Hotels of different star-classifications and/or customers' overall ratings may evoke similar or dissimilar attitudes from the guests	Conjoint analysis	Computers in Human Behavior
[55]	Hotels (Yelp)	●Context: the impact of goals, reviewer similarity, and amount of self-disclosure ●Data: 357 responses	●High quality reviews resulted in more favorable attitudes towards the hotel, which increased the purchase intention ●Better quality reviews were expected from in-group members, than out-group members	Experimental design (Regression)	Computers in Human Behavior

Table 4. *Cont.*

Reference	Review Domain (Platform)	Review Context and Data	Key Findings and Conclusion	Methodology	Article
[56]	Hotels (None)	●Context: the impact of online reviews on hotel booking intentions and perception of trust	●Consumers seem to be more influenced by early negative information	Experimental design (ANOVA)	Tourism Management
		●Data: 519 responses (Using systematic cues)	●Positively framed information together with numerical rating details increases both booking intentions and consumer trust.		
			●Consumers tend to rely on easy-to-process information		
[57]	TripAdvisor	●Context: response to negative consumer generated online reivews	●Responses differ by hotel classification; more service related problems in the top-ranked 75 hotels and more product related problems raised in the bottom-ranked 75 hotels	Content analysis	Journal of Hospitaltiy & Tourism Research
		●Data: 150 conversation samples from TripAdvisor	●Responses seems defensive in the top hotels.		
[58]	Accommodations (None)	●Context: the effects of content type, source, and certification logos on consumer behavior	●Specific information posted by customers is seen as useful and trustworthy	Web-based experimental design	Tourism Management
		●Data: 537 responses	●Certification logos influence perceptions of corporate social responsibility		
[78]	Trourism products (None)	●Context: how travel product types and online review directions influence review persuasiveness	●Travel product type and online review direction have a combined effect on online persuasiveness	Experimental design	Journal of Travel & Tourism Marketing
[59]	Hotels (None)	●Context: the impact of OHTs on consumer decision making.	●Exposure to online reviews enhances hotel consideration in consumers	Experimental design	Tourism Management
		●Data: 168 responses (Using systematic cues)	●Positive reviews improve attitudes toward hotels		
[18]	Hotels (None)	●Context: the impact of language style on consumers reactions to online reviews	●Figurative language doesn't offer significant advantages in terms of persuasive power	Experimental design (ANOVA)	Tourism Management
		●Data: 134 responses (Using systematic cues)	●Reviewer expertise level was found to moderate the impact of review's language style on consumers' attitudes and purchase intentions		

Table 4. *Cont.*

Reference	Review Domain (Platform)	Review Context and Data	Key Findings and Conclusion	Methodology	Article
[79]	TripAdvisor, Expedia, Yelp	●Context: consumer-generated review qualtiy related to social media analytics	● Huge discrepancies in the representation of the hotel industry on three platforms	Lexical analysis	Tourism Management
		●Data: 439K reviews from TripAdvisor, 481K/expedia, 31K/Yelp	●Yelp seems to have powerful perfomrance in rating and helpfulness as it has a high variance in review sentiment.		
[60]	Hotels (None)	●Context: the role of perceived source credibility and pre-decisional disposition	●The presence of personal identifying information (PII) positively affects the perceived credibility of the online reviews	Experimental design (ANOVA)	International Journal of Hospitality Management
		●Data: 274 responses (Using systematic cues)	●The ambivalent online reviews appeared to convey an overall negative message to participants		
[62]	Hotels (Tripadvisor)	●Context: the effects of managerial response on consumer OHRs and hotel performance	●Managerial response leads to an average increase of 0.235 stars in the TripAdvisor ratings	Econometric models	International Journal of Contemporary Hospitality Management
		●Data: 56,284 reviews and 10,793 managerial responses for 1045 hotels	●Managerial response moderates the influence of ratings and volume of consumer eWOM on hotel performance.		
[72]	OpenRice (Food and restaurant review platform)	●Context: the effects of experience and knowledge sharing motivation on eWOM intention	● Consumption experience and motivation is an integrative content of eWOM intentions	Questionnair	Journal of Hospitatlity & Tourism Research
		●Data: 244 samples	● Moderating effect of technology acceptance factors for the relationships among restaurant satisfaction, knowledge sharing motivations, and eWOM intention		
[3]	TripAdvisor	●Context: importance of online hotel reviews' heuristic attributes in helpfulness	● Review rating and reviewer helpful vote attriutes are the most important factors influencing review helpfulness	A conjoint analysis apporach	Jouranl of Travel & Tourism Marketing
		●Data: 1158 reviews	● Reviews written by lcoal travelers are perceived more helpful than reviews written by unknown travelers, from foreign conturies, or from other states in the same country		

Table 4. *Cont.*

Reference	Review Domain (Platform)	Review Context and Data	Key Findings and Conclusion	Methodology	Article
[64]	Hotels (Ctrip)	●Context: the impact of online reviews on sales ●Data: 40,424 reviews of 2205 hotels	●Traveler reviews have a significant impact on hotel online booking	Log-linear regression	Computers in Human Behavior
[65]	Hotels (Daodao)	●Context: the influence of price on customers' perceptions of service quality and value ●Data: 43,726 reviews of 774 hotels	●It has a positive impact on perceived quality but has a negative impact on perceived value ●Price has a more significant impact on perceived quality for higher-star, luxury hotels than lower-star, economy establishments	OLS regression	Journal of Hospitality & Tourism Research
[84]	Restaurants (Dianping)	●Context: factors that are important to consumers' purchase decision making ●Data: 191 responses	●Argument quality of online reviews (systematic factor) has a significant effect on consumers' purchase intention ●Source credibility and perceived quantity of reviews (heuristic factors) have direct impacts on purchase intention	Survey (Structural Equation Model)	Decision Support Systems
[6]	Restaurants (Dianping)	●Context: Consumer-generated reviews and editors reviews have different influences ●Data: 1242 restaurants reviews	●Consumer-generated ratings and the volume of online consumer reviews are positively associated with the online popularity of restaurants ●Editor reviews have a negative relationship with consumers' intention to visit a restaurant's webpage	OLS regression	International Journal of Hospitality Management

Table 4. *Cont.*

Reference	Review Domain (Platform)	Review Context and Data	Key Findings and Conclusion	Methodology	Article
[66]	Hotels (Qunar)	●Context: the effects of website-recognized expert reviews on travelers' rating behavior ●Data: 3,600,000 reviews of 31,154 hotels (covering all hotel classes)	●When the number of expert reviews for a hotel increases, traveler ratings exhibit an upward trend ●With an increased level of reviewing expertise, a traveler's ratings tend to become more negative ●Travelers with different expertise levels are affected differently by expert reviews of a hotel	Estimation method	Tourism Management
[67]	Hotels (Agoda)	●Context: the comparison of customer satisfaction ●Data: 1345 reviews of the 97 four and five-star hotels	●The study identified 23 key attributes from OHRs that underpin customer satisfaction ●The comparison of customer satisfaction between 4 and five-star hotels, properties with different ownership, and the views of guests from different origins	Qualitative	International Journal of Hospitality Management

5.1.2. The Characteristics of Review Factor

Not only source characteristics but also review characteristics can play a significant impact on the persuasiveness of HTOR in the communication persuasion process. Review factor can be divided into heuristic-systematic information processing which is applied to understand the dual-process model. In the hospitality and tourism literature, only a few scholars addressed or applied the HSM [83] to understand the impacts of HTOR. Sparks et al. [13] adopted the HSM to explain how HTORs influence consumer behavior by conducting experimental method. Zhang et al. [84] found that the impact of argument quality (systematic processing) and source credibility (heuristic processing) affect consumers' purchase decision making by employing survey design. From the HTOR prospective, heuristic characteristics are more dominant for investigating the impact of review characteristics on peer review evaluation. However, relatively little attention has been paid in the effect of systematic information processing. Only a few studies on HTORs focus on the influence of massage sentiment (i.e., negative language, positive language or review sidedness) has been examined [71]. Another important systematic cue is review readability which refers to the degree of understandability or comprehensibility of each review [89]. Liu and Park [16] and Fang et al. [73] explored the impact of review readability on peer evaluation of helpful votes. Notwithstanding these recent studies in the HTOR community, however, the study that employs systematic cue can provide new insights regarding what are the key systematic cues for understanding the effects of HTOR.

5.1.3. The Characteristics of Context Factor

The type of product/service was proven to be influential when HTOR system users perceive the usefulness of recommendations. Previous past studies on IS investigated that the moderating role of product type and complexity of users' decision-making process and outcomes [71,90,91]. Lu et al. [45] found that both the average rating of online hotel reviews and rating variance have a significant impact on hotel sales and this effect is moderated by hotel star rating. Racherla and Friske [71] investigated the interaction effects between HTORs and the service type (search vs. experience vs. credence) on peer review evaluation. However, only a few researchers examined the moderating effects of the type of product/service on users' perceived usefulness in HTORs context [45,71,78]. By better understanding the impact of various HTOR characteristics, moderator roles allow researchers to take concrete steps to enhance the effects of HTOR on consumer perception.

5.2. Heuristic–Systematic Process of HTOR

Since the HSM has been applied to explain broader information processing and can contribute a theoretical extension [92], we analyzed by adopting the dual process of the HSM which occur concurrently and affect each other in complex ways to understand the impacts of the characteristics of HTOR [93]. From the perspective of the HSM, the dual information processing proposes useful dimension to understanding persuasion in the context of HTOR. The systematic processing concludes deep levels of elaborateness with the information, careful attention and reasoning. By contrast, heuristic processing involves less demanding and more efficient, using easily comprehended cues [83]. Consumers usually take advantage of heuristic processing prior taking carefully examining the arguments of the systematic processing. However, in HTOR literature, only a few studies investigated the impact of systematic processing on consumer perception [16,58,71,73,84]. In particular, systematic information processing can uncover nuanced opinions that are generally lost in heuristic processing. Table 5 summarizes the heuristic cues of source factor that triggering heuristic processing to understand the impact of HTOR. Table 6 summarizes the systematic cues of review factor that triggering systematic processing to understand the impact of HTOR.

Table 5. Summary of heuristic processing on HTOR.

Heuristic Cues	Definition	Characteristics	Reference
Identity cues	A piece of self-created personal information about individual users	Real photo, real name, real address	[88,94]
Reputation cues	A piece of system-generated information in the form of aggregated opinions from others	A number of trusted members, number of contributions, number of friends and fans	[16,71,87]
Expertise cues	A piece of information to which a reviewer is perceived to be an expert which can derive from high levels of knowledge, ability, and skills	Label of expert review, number of reviews, number of expert review, elite badge, number of cities visited	[71,88]
Bandwagon cues	A piece of information that favors collective sources over individual sources (i.e., "if others think that something is good, then I should, too")	Number of reviews, number of friends, number of fans, cumulative helpfulness, sales rankings	[88,94–96]
Authority cues	A piece of information by designating ratings by medium (experts) whether a source is a content expert	Reviewer level, top reviewer rankings	[95,96]
Attribute-based cues	A piece of information to which a reviewer evaluates the product/service quality	Star rating, hotel attributes (value, service, rooms, sleep quality, location, cleanliness), restaurant attributes	[70,71,77]
Visual-based cues	A piece of visual information such as photos, video clips	the number of photos, video	[97]
Textual-based cues	A piece of heuristic information from review lengthy	Review length	[70,71,77]

Table 6. Summary of systematic processing on HTOR.

Systematic Cues	Definition	Characteristics	Reference
Lexical cues	Language styles affecting consumer decision making	Figurative and literal language. Affective and cognitive language. Positive and negative language.	[18,67,70]
Linguistic cues	The extent to which an individual requires to comprehend the product information can present the level of understandability	Review readability	[71,73]

5.3. Thematic Framework of HTOR's Impact on HSM

　　The visual diagram in Figure 3 presents an integrated thematic framework with the dynamic relationships among different factor and heuristic-systematic processing. This visual diagram is expected to assist practitioners better understand concurrent literature in the context of HTORs and help researchers extend new research questions for future research. The major findings of the dimensions of the impacts of HTORs in the present study are as follows:
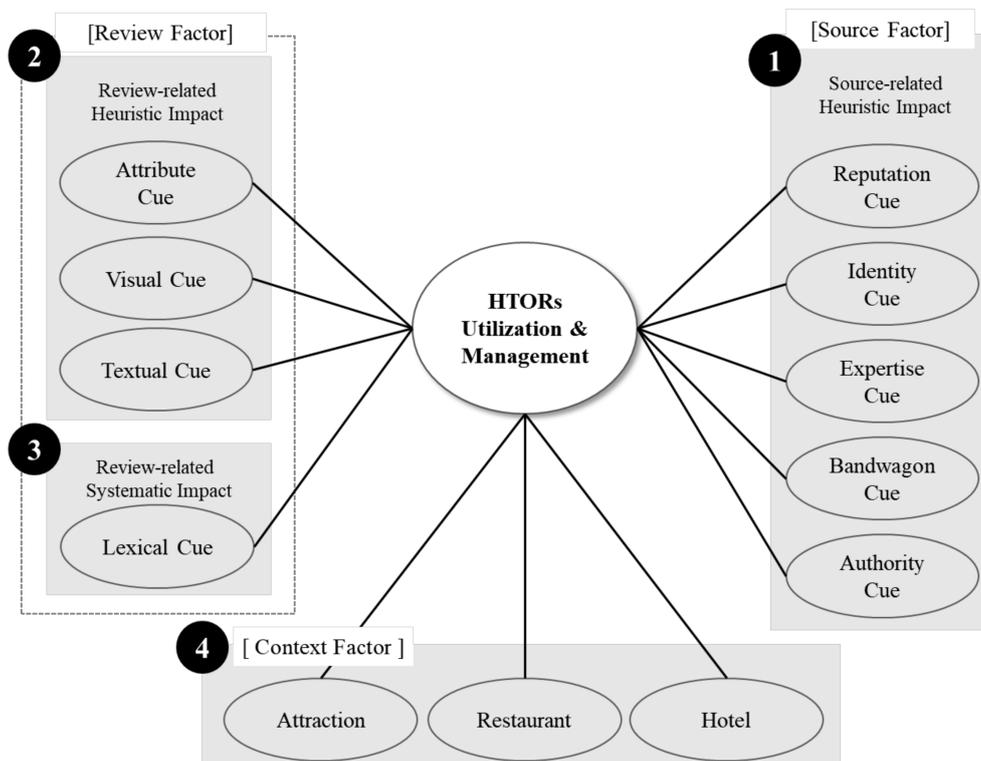

Figure 3. Thematic framework of HTOR's impact on heuristic-systematic model.

Source-Related Heuristic Impact in HTOR

- The reputation heuristics indicating the system-generated information in the form of aggregated opinions from other users can substantially influence consumer perception and behavioral intentions towards HTORs [87,94]. Reputation cues such as number of trusted members, number of contributions and number of friends and fans can trigger the reputation heuristic.

- The identity heuristics prevail in many online interfaces and information platforms today, and other researchers have explored the impact of personal information on consumer perception [16,94]. Identity cues are self-created cues that present how the reviewer looks [87]. Identity cues provide heuristically valuable information about source factors and may contribute to the credibility of the source factor and review message written by a believable source [98]. Liu and Park [16] revealed that some identity cues, such as real names, real photos and real addresses, had a significant effect on review usefulness.

- The expertise heuristic refers to the extent to which other consumers perceive the knowledge and skill of the source to be adequate to make valid assertions [95]. This study defines expertise cues that trigger the expertise heuristic as consumers' overall perceptions regarding the expertise of the review sources, such as number of expert reviews, elite badges or expert review label. Expertise is closely associated with authority cues. This study, however, finds that the expertise heuristic is related to the signal of aggregated opinions from medium (e.g., label of expert review and elite

badge) or system-generated cues (e.g., number of reviews and number of cities visited), whereas the authority heuristic defines the designated ratings, such as reviewer level and TripAdvisor's ranking of recommendations.

- The bandwagon heuristic is associated with a mass of consumer opinion that is considered quite valuable (i.e., "if others think that something is good, then I should, too") [96]. The bandwagon heuristic is triggered by bandwagon cues such as number of reviews, number of friends, number of fans and sales rankings. Consumers tend to imitate other users' decisions when they are presented with a large amount of information; thus, the bandwagon heuristic can help consumers assess information quality [95].
- The authority heuristic can be triggered by authority cues, which are related to expertise. Specifically, the authority heuristic refers to designated ratings by medium (experts) regardless of whether a source is a content expert, whereas the expertise heuristic is related to the signal that can be derived from a high level of knowledge and skills [95,96]. In this study, the level of reviewer expertise was considered an authority cue.

Review-Related Heuristic Impact in HTOR

- The attribute heuristic refers to the heuristic processing triggered by dominant hotel attributes (i.e., value, location, sleep quality, rooms, cleanliness, and service) or restaurant attributes (i.e., taste, environment). Further, HTORs generally present overall star ratings that trigger heuristic processing about product/service evaluations. The attribute heuristic has been investigated with regard to the impact of star ratings on peer review evaluations [16,45,71], and it has been revealed that star ratings have a significant negative effect on review usefulness.
- The visual heuristic is associated with the visual information format, such as photos and video clips, which seem faster and easier to process [99]. Relatively little research has shed light on the visual heuristic in assessing the impact of HTORs. Lin et al. [97] found that the effect of visual information is stronger for both search and experience-hedonic products than for experience-utilitarian products.
- The textual heuristic refers to a piece of heuristic information, such as review length, where online reviews can play a powerful role in the message persuasion process [16]. Textual heuristics lead consumers to develop trustworthiness in accordance with the alleviation of customers' uncertainty about the product/service quality in the decision process [16].

Review-Related Systematic Impact in HTOR

Systematic information processing indicates that "people consider all relevant pieces of information, elaborate on these pieces of information, and form a judgment based on these elaborations" [100]. In systematic processing, consumers exert a strong cognitive effort to evaluate the usefulness/helpfulness of the review and to assess the validity of the review for making decisions.

6. Discussion and Contributions

The main objective of our study is to provide systematic review of extant HTOR research to deliver the development of HTOR research and provide the implications to manage HTORs in sustained smart destination. Hospitality and tourism becomes a significant application area of social media analytics with increasing popularity of HTOR platforms [79]. In this study, the impact of heuristic-systematic information processing on consumer perception in HTORs has been investigated to reveal the impacts of HTOR characteristics. This study provided a comprehensive overview of the extant HTORs literatures. We synthesized the findings of our systematic analysis and presented the framework of heuristic and systematic information processing in HTOR research.

This paper provided future research directions of HTOR research.

(1)　Review-related heuristic impact in HTOR including attribute cue (e.g., hotel: value, location, sleep quality, rooms, cleanliness, and service; restaurant: taste, environment and service), visual cue (e.g., food and beverage image), and textual heuristic cue (e.g., review length) is the most researched areas due to their intuitive influence on HTOR system.

(2)　Source-related heuristic impact in HTOR including reputation cue, identity cue, expertise cue, bandwagon cue, authority cue is most related with source credibility and review usefulness in online reviews. This is also the reason why potential customers concern with believable information and spend so much time searching credible information to assist their decision making. However, relatively little attention has been paid in the impact of source-related heuristic cue on sales performance, decision making and purchasing intention.

(3)　Based on our systematic review, little research has shed light on review-related systematic impact in HTORs including lexical cue and linguistic cue. Systematic information processing indicates that "people consider all relevant pieces of information, elaborate on these pieces of information, and form a judgment based on these elaborations (p. 196)" [100]. Due to the strong cognitive effort, researchers have overlooked the impact of review-related systematic cue. Because high quality, matched reviews can have a strong impact on consumer decision making, future research in this area is needed.

A theoretical contribution of this study is the identification of the existing HTOR research framework that provide as an important characteristic for academic scholars. To date, although the importance of product/service type in hospitality and tourism has been widely discussed, the relative impact of product type has not been examined in HTOR research by using data crawling method. Meanwhile, this study fills the gap presented by Schuckert et al. [13] and Kwok et al. [12]. Not only have we focused on the impact of HTORs and their characteristics on all the related dependent variables, but we have also classified all the investigated characteristics in existing literatures into heuristic and systematic information processing.

Online review research can provide the integrative insights to both academia and industry area by using real-time secondary data in tourism research. The important academic implications of the results of this study is that HTOR research show an opportunity to achieve the synthesis of theoretical developments in the smart tourism arena. Based on the analysis of 55 identified HTOR literatures, Heuristic–Systematic model was the most effectively demonstrated theoretical foundation in the study of the impact of HTORs characteristics. Since HTOR research can handle a variety of tourism fields, including hotels, restaurants, and tourism destinations, there is the potential to be expanded and carried out a different approach from the HSM described in this study.

Regarding the managerial implications, with the increasing availability and popularity of travel-related review websites, the marketer must offer adequate information that is useful to consumers in order to reduce time and cost in the HTOR setting. To do so, managers or owners of small and medium-sized tourist enterprises (SMTEs) should consider three aspects of online reviews in predicting review usefulness: (1) heuristic cues of source factors (i.e., identity cues, reputation cues, bandwagon cues, expertise cues and authority cues); (2) heuristic cues of review factors (i.e., attribute-based cues, text-based cues and visual-based cues); and (3) systematic cues (i.e., cognitive, affective, negative and positive language).

Another managerial implication to industry is the support for adopting a data analytic approach by using real world secondary data. Although there have been studies employing lab experiments or surveys, it may not be enough to control for all unobservable conditions [73].

Further, a number of secondary data analytics from HTORs are useful in obtaining insights concerning destination management issues at a geographically small attraction as well as in revealing insights from destination management in general.

7. Limitations

There are several limitations in this paper. The results and analyses of this study were limited to the pool of HTOR literature. For example, we excluded publications with a conceptual or no research design and papers that focused on recommendation system agent. Future studies should expand the literature analysis based on different views. Although we tried to analyze HTOR research published in hospitality and tourism domain, it may have missed some valuable research. By analyzing a larger number of articles, a meta-analysis is strongly recommended in the future.

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