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RESEARCH ARTICLE

An analysis of online reputation at integrated resort in Macao—Evidence from the survey of customer online review

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Abstract: Integrated resorts, an important business card for Macao's tourism industry, has attracted many tourists and become an important economic pillar. Customer reviews posted on the Internet are an important reflection of the online reputation of integrated resorts and can directly affect performance. Thus, integrated resort operators and destination managers need to develop business strategies by knowing key influencing factors in online reputation of Macao's integrated resorts. In this study, 13,282 customer reviews were collected from the top five Macao integrated resorts in terms of number of reviews on Google Travel. Through cluster analysis, nighty-nine keywords with the highest frequency were divided into four clusters: "entertainment", "experience", "facilities", and "atmosphere". The results of factor analysis classified fifteen keywords into four groups: "consumption", "room service", "transportation", and "entertainment". Finally, the results of the linear regression analysis indicated that "consumption", "room service", and "entertainment" had a significant positive effect on online reputation, while "transportation" had a non-significant negative effect. This study enriches the research on the online reputation of integrated resorts by using big data technology and puts forward decision-making suggestions to stakeholders on the key influencing factors in online reputation based on the data analysis results and the findings of related studies.

Keywords: integrated resort; online reputation; customer online review; text mining; semantic network analysis; Macao

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1. Introduction

Integrated resorts, one of the fast-growing tourism fields, have attracted extensive interest in

tourism and hospitality research. As a landmark industry, integrated resorts are burgeoning in many of the world's tourist destinations[1]. Defined as a property integrating leisure, casino, hotel, catering, shopping mall, and exhibition[2–4], the integrated resort is a new tourism product that attracts both gaming and non-gaming customers[5]. These entertainment programs are generally not included in the regular hotel operations and present a positive impact on reputation in the results of this study, reflecting the unique competitiveness of integrated resorts in their operations. This industry is in line with the needs of Macao's sustainable economic development and the establishment of a diversified urban image, and it has been growing rapidly in Macao in recent years.

Macao is the largest contributor to the study of integrated resorts[6]. It is mainly focused on integrated resort development and management[7–10], integrated resort and meetings, incentives, conventions, exhibitions (MICE)[11,12], as well as consumer behavior of integrated resorts[2,13,14]. Myriads of integrated resort operators and developers are focusing their emerging tourism marketing strategies on attracting large markets rather than high-end gamblers. For integrated resorts with gaming business, the adverse nature of gaming business requires building a positive corporate image through perceived corporate social responsibility to maintain corporate loyalty levels[15]. The decision-making of integrated resort services and products must understand the consumption behavior of gamblers and non-gamblers, which can be utilized to guide the development of attractive publicity materials[16]. The occurrence of public health emergencies has caused a continuous blow and operational crisis to integrated resorts, so the operators of integrated resorts are trying to find a balance between maintaining operating costs and retaining talents through flexible leave and other systems to achieve cost savings[17]. Meanwhile, in terms of the external environment, according to the announcement of the Macao Special Administrative Region Government, from April 1, 2023, there is no need to present any COVID-19 testing proof when entering Macao from Mainland China, Hong Kong, Taiwan, and foreign countries[18], which provides a good opportunity for the full recovery of Macao's tourism economy. Therefore, operators of integrated resorts need to seize this opportunity and vigorously devote themselves to expanding the market and attracting tourists. It has been suggested that although COVID-19 is a major disruptor in the hospitality industry, it also provides a tremendous research opportunity for hotel researchers and businesses to understand and adjust operational strategies based on customer attitudes and behaviors[19]. Potential customers consider online reviews from the pandemic period before determining whether they would like to check into a hotel or dine at a restaurant[20]. To recover from the blow of COVID-19, one study explored how Macao has adopted public-private partnership governance to help the tourism industry recover through qualitative interviews with Macao's major tourism associations and major information providers of government departments, attempting to provide industry partners with advice on how to act more effectively and respond to the crisis[21].

Online corporate reputation plays a strategic role in improving corporate performance. By collecting, processing, and analyzing the content in online reviews, it should be regarded as intangible assets that can have an impact on tangible assets and business values[22]. What's more, maintaining online corporate reputation plays a crucial role in the sustainable development of an organization[23]. In particular, for the tourism and hotel industry, reputation is an important factor determining enterprise performance and is increasingly concerned by academia. Veh *et al*.[24], in their literature review of corporate reputation among management studies, summarized the corporate reputation studies published in the Scopes database and found that studies on corporate reputation not only increased

in quantity gradually, but also were widely related to the tourism and hotel industry. The hotel reputation and reviewer reputation discussed in previous studies were both established through customer online reviews, and both reflected consumer experience. Besides, it is widely believed that online reviews generated by consumers form electronic word-of-mouth (eWOM), which directly affects the reputation of hotel management and can have a direct impact on hotel performance.

Online reviews are published by customers after they have tried out the product and have given it a review. When consumers are deciding whether to purchase a travel product, they turn to them as an important source of information, and they have a significant impact on their decision-making[25]. Therefore, operators of the integrated resort should pay close attention to customer online reviews, which can assist in understanding the customers' specific concerns about the experience of the integrated resort, to provide a strong reference for formulating the management strategy and improving the service level. From the perspective of the hotel consumer, exploring customers' online reviews can help to know their evaluation of the integrated resort, since they have diverse views, expectations, and preferences for the specific type of hotel, which can affect reputation. These resorts offer a wide range of tourism services and a broad customer base, among which understanding customer post-purchase behavior has become a growing focus for academics and practitioners[26].

With customer online reviews of integrated resorts as the research object, this study explores the keywords and attribute structure of customer online reviews of integrated resorts in Macao through text mining and semantic network analysis. From a theoretical point of view, this study focuses on the customer online reviews of integrated resorts, enriches the research from the perspective of integrated resorts' customers, and enriches the research methods of the integrated resort industry by combining text mining and semantic network analysis with integrated resorts. This study explores the keywords and attribute structure of customers' online reviews of Macao integrated resorts and finds out the main trends of customers' experience and reputation of integrated resorts in Macao. For the operators of integrated resorts, they can understand consumer behavior and intention, providing a reference for business decision-making. For the managers of Macao's tourist destinations, the business of integrated resorts has an important influence on the destination image of Macao and the development of the tourism industry, thus it can also provide a reference for their decision-making.

2. Literature review

2.1. Integrated resort

The origin and development of the integrated resort are accompanied by changes in the American gaming industry. By offering integrated entertainment centers that include both gaming and non-gaming activities, integrated resorts attract new customers and encourage existing gamblers to diversify their consumption habits[2]. Thus, the integrated resort is multi-functional, operating casinos as well as hotels, convention and shopping centers, exhibition facilities, concert halls, theme parks, museums, and recreational sports facilities. Besides, the integrated resort features a specially designed multi-dimensional tourist attraction, aimed at encouraging visitors to stay, and consume in the resort without the need for external supply[27]. In terms of supply, many governments and tourism service providers are increasingly investing in integrated resorts, whose development can help increase revenues, create jobs, and promote local tourism[28]. In terms of needs, in addition to games, the resort provides leisure, entertainment, and sports services for tourists[29]. These trends indicate

that the integrated resort is an industry of great economic and social value.

While stimulating regional economic growth, integrated resorts are also gradually catching the attention of tourism and hotel industry research. Existing studies on integrated resorts are focused on the following aspects: integrated resort development[30,31], integrated resort impact[32,33], integrated resort management[34], integrated resort marketing[1,29], as well as the integrated resort and MICE[35].

From the perspective of research methods, integrated resort research can be divided into four types. In the case of quantitative analysis, Gao and Lai[2] construct integrated satisfaction for entities providing various products or services from four perspectives: catering, hotel service, casino, and shopping experience; meanwhile, they probe into the factors influencing customers' integrated review with the integrated resort experiences and conclude that the integrated satisfaction exists in the single resort providing a series of services. In the case of literature review, Ahn and Back[36] reviewed the papers on integrated resorts from 1991 to 2017, published in the literature on hotels and tourism. They provide a thematic overview of the integrated resort industry from the literature. In the case of qualitative analysis, Luo *et al*.[37] employ qualitative methods, from a management perspective, to identify the main obstacles to implementing green practices in Macao's integrated resorts; they use semi-structured interviews and grounded theory to conduct qualitative analysis. In the case of online comment sentiment analysis, Philander and Zhong[3] make use of the integrated resorts' review data on Twitter to carry out sentiment analysis, categorizing positive and negative emotions.

At present, there are six Lucky Gaming Concessionaires in Macao, dividing the revenue structure into two parts: gaming and non-gaming. While gaming revenue has maintained the dominant position in the revenue structure in 2017–2020, non-gaming revenue has also taken a certain proportion. Particularly, in the context of public health emergencies in 2020, the proportion of non-gaming revenue growth demonstrates the complementary advantages of the integrated resort management structure. Exhibits, retail activities & rental of spaces (40.01%) account for the largest portion of non-gaming revenue in 2020, followed by accommodation (32.9%) and catering (22.5%)[38]. On account of the non-preservation nature of the hotel's services such as rooms and facilities, luxury hotels like the integrated resorts (IRs) need to constantly address the non-use of resources. While gaming is a major source of revenue, non-gaming revenue is also a concern for operators[39].

2.2. Reputation and customer online review

The concept of reputation has different concerns for different audiences. Some scholars believed that reputation is the overall impression of an organization by stakeholders, or the perception of an enterprise by external observers. In addition, from the perspective of marketing, reputation not only represents corporate identity/image[40], but can also be associated with purchasers' intentions[41], which refers to customers' perception of the company and the image of sales personnel. Reputation occupies an important place in management research and has attracted wide attention in the fields of business, management, and accounting. Studies have confirmed that hotel reputation is influenced by environmental performance and plays a decisive moderating role in the relationship between environmental performance and financial performance[42].

Since the advent of Web 2.0, user-generated content (UGC) has formed abundant information sources that consumers provide to share their experiences and knowledge of a company or brand

through social media. The challenge that the Internet brings for tourism is that content published online, whether official or unofficial, can become a reference. For tourists, the content on the web forms the expectation of a destination. For managers, it is necessary to understand the tourists' experiences at the destination and what future tourists may need to focus on, which may influence their decision to visit the destination. The exploration of customer online reviews is not limited to the content analysis. Some researchers believed that rating diversity has a greater impact on negative reviews with low ratings or low sentiment in their exploration of hotel consumption these ratings, which is consistent with the concept of loss avoidance in the decision-making process of hotel booking platforms. The negative deviation of ratings has a greater influence on review sentiment than the positive deviation[43,44]. Some scholars contend that these individuals' opinions are regarded as instances of reputation and can be regarded as the answer to the invisible investigation.

By reviewing relevant studies on destination online reputation, Marchiori *et al*.[45] believed that paying attention to the content of online reviews is an important approach to understanding corporate reputation, which seems to better satisfy the enterprise's needs to understand and manage the online presence thanks to the increasing professional data collection and data classification tools. Proserpio and Zervas[46] concentrating on the relationship between a firm's use of management responses and its online reputation in their study, claimed that positive responses from management would increase the cost of negative comments and reduce the cost of positive comments; meanwhile, they would attract positive comments, which is an effective way for enterprises to improve their online reputation. Anagnostopoulou *et al*.[47] explored the impact of online customer reputation and hotel financial profitability through quantification. Some scholars focused on whether and how COVID-19 changed consumers' evaluation of hotel attributes and its impact on customer satisfaction through online reviews, and the results showed three basic attributes: basic attribute, excitement attribute, and performance attribute[48]. Online reputation was obtained by extracting the most common textual themes related to customer satisfaction and dissatisfaction; and textual analysis of positive and negative expressions in online customer reviews was used to measure the impact of online customer reputation on financial profitability in conjunction with overall hotel financial performance indicators. It was also proposed that recurring themes in positive reviews are significantly associated with hotel financial performance.

In summary, customer eWOM reflects consumers' intuitive perceptions of the hotel product that they have consumed and experienced, and the hotel management's positive response to this feedback has a bearing on the overall reputation and performance of the hotel. Meanwhile, it is extremely essential to understand the positive or negative key factors that influence online reputation. The management of online word-of-mouth can have a sustainable positive impact on corporate reputation, possibly in the form of positive corporate performance.

2.3. Text mining and semantic network analysis

Big data has expanded the scope of tourism research from an academic research perspective, providing useful and practical knowledge for destination, hotel, revenue and reputation management. The potential value of big data analysis has been captured by the tourism and hospitality industries, with most research relying on content captured in UGC big data, and the ability to transform big data into valuable practical knowledge and insights has been established[49,50]. Text mining employs information retrieval, information extraction, and natural language processing technologies to iden-

tify unknown useful patterns and knowledge texts[51]. By and large, the process of text mining covers data collection, data extraction, data analysis, and so on[52]. To be more specific, the very first step is to determine what type of information the researcher is looking for. Secondly, limiting the scope of data collection and familiarizing with the characteristics of keywords is crucial. Data extraction is to convert unstructured text into structured form. While for information-based data analysis, text analysis and extraction as well as clustering and classification techniques are conducted, as a management information system and as knowledge accumulation[52]. Text mining has been applied in many research fields. Multitudes of published studies are based on customer reviews, especially in the tourism and hospitality industries, with an emphasis on text mining and sentiment analysis in customer reviews. For example, Ban *et al*.[53] have used text mining to obtain online review data and investigated key factors of hotel customer experience and satisfaction. Using text mining, Qi and Chen[54] take customer reviews of Macao's tourist attractions as the research object to explore the key factors of tourism destination image over a span of years.

Semantic network analysis refers to the application of network analysis techniques based on shared meaning, rather than pairwise associations based on behavioral or perceptual communication connections[55]. Texts are encoded into networks to identify the structural relationships between words. In addition, the contextual meaning of undisclosed internal information can be determined by semantic network analysis[56]. Besides, word frequency analysis and cluster analysis can help to understand the level of influence of particular words and analyze how a word affects the relationship between groups[57,58]. Roy analyzed the impact of tourists' online reviews on hotel performance by sentiment analysis[59]. The purpose of CONCOR analysis is to find connections between words. When the similarity of connection patterns is greater, the structural equivalence with other words is higher. A cluster of keywords that are similar to each other is then formed[57]. The extracted keywords are ranked in accordance with frequency, and a matrix is constructed in the frequency histogram. Semantic network analysis, as a quantitative text analysis method, provides a theoretical and methodological basis for depicting the semantic properties of online reviews. Based on Korean Citation Index (KCI), Wang *et al*.[60] have conducted a series of research to explore the trend of human resource management (HRM), using topic modeling and semantic network analysis.

3. Methodology

3.1. Data collection

This study aims to find out the key factors of customer online reviews of integrated resorts. Based on the number of customer reviews on Google Travel, the study selects the top five integrated resorts in Macao, all of which include the casino, hotel, shopping center, exhibition, entertainment facilities, and other elements covered by the integrated resort hotel, as shown in **Table 1**. The study uses SCTM 3.0, a crawler software, to collect online reviews of the top five integrated resorts with the largest number of reviews on Google Travel between February 2018 and February 2022, including English, Chinese (simplified, traditional), Japanese, Korean, and other languages. All non-English texts are translated into English by Google Transfer. After excluding those with no content, a total of 13,282 comments are collected. With Text Mining and Semantic Network analysis, this paper summarizes and analyzes the online reputation based on customers' online reviews of integrated resorts in Macao.

Table 1. Information of sample integrated resort

Section	Casino	Modules shown on the official website*	Number of reviews	%	Review rating on Google Travel
The Venetian Macao	Casino Venetian	Suit; Dine; Shop; Show; Offer; Amenities; Meetings; Sands Rewards; Sands Gallery	4,804	36.0	4.5
Studio City Macao	Casino Studio City, Macao	Promotions; Accommodation; Entertainment; Dining; Shops; Meetings & Events; Melco style	2,409	18.0	4.4
Galaxy Hotel	Casino Galaxy Macao	Offers; Hotels; Dining; Shopping; Experience; Tickets& Shows; Meetings & Events; ICBC Galaxy Macao Credit Card	2,176	16.4	4.5
The Parisian Macao	Casino Parisian Macao	Offers; Hotel; Dining; Entertainment; Shopping; Eiffel Tower; Meetings; Sands Rewards; Sands Gallery	2,080	15.6	4.5
Wynn Palace	Casino Wynn Palace	Rooms & Suits; Dining; Shops; Amenities; Entertainment; Meetings & Events	1,813	14.0	4.6

3.2. Data processing and analysis

The process of collecting and analyzing data in this study is divided into two parts: purification and preprocessing. The accuracy of sentiment analysis was improved by refining Term Frequency and Inverse Document Frequency (TF/IDF) approach[49]. To text using R language through Rstudio software. It includes the word (term) whose frequency is to be calculated and number of the word in a document, thus generating a matrix containing the content of the reviews and the top 99 keywords in frequency ranking.

To start with, the collected data was purified. The first step was to remove the meaningless characters or links. Secondly, the expression of the same semantic text was unified based on word roots. For example, the words “kid”, “children”, and “child” were unified with “child”; while plural words like “rooms” were unified in singular form. Subsequently, the data were preprocessed through Rstuido software to get word frequency and word frequency matrix.

This study used the results of data analysis to discover the features of customers’ online reviews and the factors that have an impact on online word-of-mouth. Firstly, UNCINT 6.0 software was used to process the word frequency and word frequency matrix data to obtain the semantic network analysis results and visualize them through NetDraw. The words appearing in the collected valid reviews were ranked according to their frequencies. The top 99 words reflecting the highest frequency of customer experience were then extracted and ranked. The selected high-frequency words were given to research objects based on the closely related standards of these words[47]. According to the frequency of words appearing in reviews, the proportion of each word in the total word frequency was calculated and ranked from high to low. Next, the keywords were grouped by semantic network analysis. Finally, the data were analyzed by linear regression through SPSS 23.0, so as to verify the key influencing factors in online reputation. The data processing and analysis structure is shown in **Figure 1**.

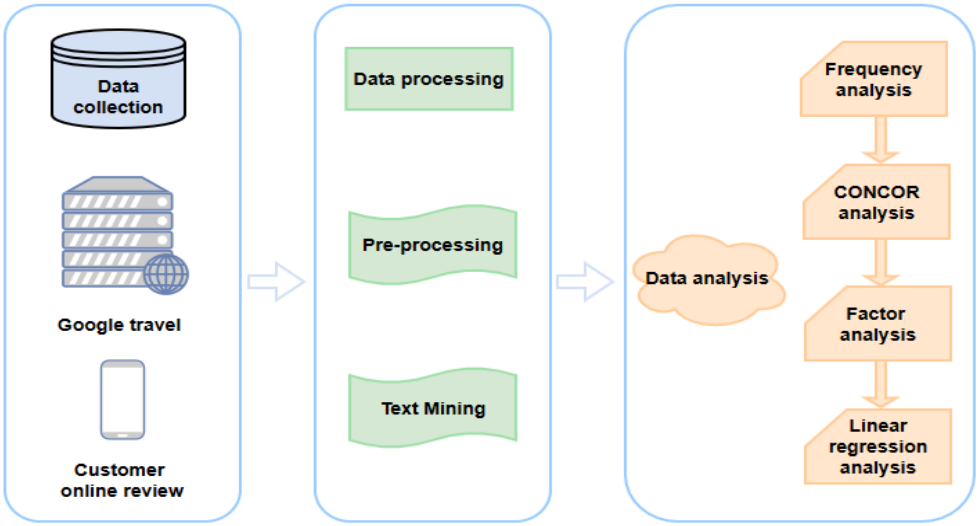

Figure 1. The data processing and analysis structure.

4. Results

4.1. Frequency analysis

In the collected valid comments, the appearing words are ranked according to their frequency. Then, the top 99 words that reflect the most frequent customer experience are extracted and sorted, as shown in **Table 2**. The high-frequency words are selected in line with their closely related criteria. Based on the word frequency in the comments, each word is ranked from high to low by its percentage in the overall word frequency.

This study selects the top 99 keywords in frequency, and the total number of word frequency reaches 61,781 times. The keyword distribution is exhibited in **Table 2**, and the frequency network is shown in **Figure 2**. On the basis of frequency distribution, there are three keywords with a frequency greater than 3,000, respectively "good", "room" and "casino", and 13 keywords with a frequency between 1,000 and 2,000, namely "beautiful", "nice", "shopping", "great", "free", "show", "luxurious", "service", "food", "big", "restaurant", "water" and "tower". The frequency of the other 84 keywords is all below 1,000. In light of the keywords' meaning, there are some keywords about the integrated resorts' business, such as "room", "casino", "show", "restaurant", "entertainment", and "store". From the perspective of customer experience, there are adjectives like "good", "beautiful", and "nice" among keywords.

Table 2. Frequency of the top 99 keywords

Rank	Words	Frequency	Rank	Words	Frequency	Rank	Words	Frequency
1	good	3,471	34	enjoy	586	67	breakfast	270
2	room	3,358	35	huge	584	68	famous	254
3	casino	3,050	36	worth	570	69	batman	250
4	beautiful	1,879	37	gondola	555	70	location	237
5	nice	1,653	38	well	533	71	suitable	234
6	shopping	1,650	39	Ferris wheel	481	72	enough	233
7	great	1,591	40	love	476	73	atmosphere	229

Table 2. (*Continued*)

Rank	Words	Frequency	Rank	Words	Frequency	Rank	Words	Frequency
8	free	1,405	41	new	472	74	special	223
9	show	1,386	42	recommend	463	75	environment	221
10	luxurious	1,350	43	fun	441	76	pretty	214
11	service	1,349	44	dance	440	77	airport	214
12	food	1,337	45	price	435	78	gambling	210
13	big	1,154	46	awesome	419	79	entrance	210
14	restaurant	1,049	47	convenient	417	80	old	206
15	water	1,041	48	lobby	416	81	magnificent	197
16	tower	1,016	49	spacious	411	82	suite	194
17	mall	999	50	super	408	83	bad	192
18	impeccable	943	51	friendly	400	84	cool	192
19	staff	929	52	swimming	389	85	bathroom	191
20	cable car	920	53	building	378	86	perfect	190
21	pool	898	54	excellent	365	87	light	190
22	fountain	879	55	resort	356	88	pictures	190
23	best	871	56	child	342	89	bed	189
24	view	831	57	gorgeous	325	90	fantastic	179
25	amazing	824	58	better	322	91	music	178
26	shop	815	59	expensive	315	92	decoration	175
27	comfortable	762	60	grand	314	93	diamond	171
28	large	750	61	entertainment	310	94	scenery	170
29	shuttle	723	62	store	308	95	spectacular	169
30	clean	704	63	buffet	304	96	park	168
31	Eiffel	666	64	family	292	97	door	167
32	experience	659	65	delicious	273	98	size	166
33	facilities	653	66	canal	273	99	ferry terminal	166

4.2. Semantic network analysis

In this stage, this study applies Freeman's Degree Centrality to measure the degree of connectivity between a node and other nodes in the network. It is believed that the higher the degree of connectivity between a keyword and other keywords, the greater the influence it has on other words, thus becoming the dominant word. Eigenvector Centrality is a useful index by which this study examines the most influential central nodes in the network. It considers not only the number of connectives but also the importance of connection relationships between keywords. Semantic network analysis is a channel to obtain information by identifying the internal structure of useful data. It is a method of deriving meaning from text and linking adjacent concepts. The results of these two indexes for 99 keywords are shown in **Table 3**.

According to the results, the top 10 keywords for Freeman's Degree Centrality and Eigenvector Centrality are the same: "room", "good", "casino", "beautiful", "shopping", "great", "free", "service", "food", "restaurant". All of these words are among the top 14 frequent words, indicating that they not only have high attention, but also have a strong connection and influence.

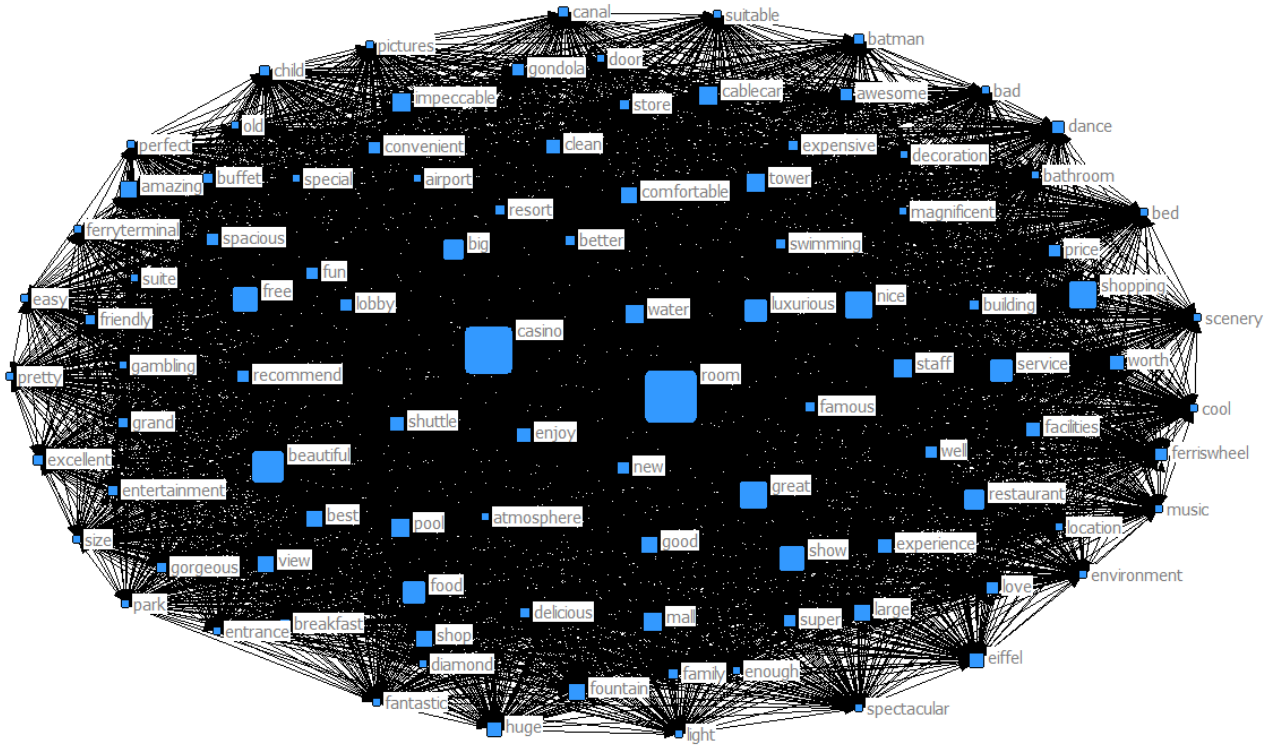

Figure 2. Network visibility of top-frequency words.

Table 3. Comparison of words frequency and centrality

Words	Frequency		Freeman's degree centrality		Eigenvector centrality	
	Frequency	Rank	Coefficient	Rank	Coefficient	Rank
good	3,471	1	17.00	3	43.91	2
room	3,358	2	19.70	1	48.05	1
casino	3,050	3	17.04	2	43.53	3
beautiful	1,879	4	9.03	9	23.36	10
nice	1,653	5	6.98	17	20.27	14
shopping	1,650	6	11.41	4	31.68	4
great	1,591	7	9.11	8	25.22	7
free	1,405	8	9.73	5	24.42	9
show	1,386	9	8.15	11	19.07	17
luxurious	1,350	10	7.80	12	21.09	11
service	1,349	11	9.60	6	27.02	5
food	1,337	12	9.48	7	26.63	6
big	1,154	13	7.13	15	20.78	12
restaurant	1,049	14	8.83	10	24.84	8
water	1,041	15	7.81	13	19.20	16
tower	1,016	16	5.87	22	15.07	23
mall	999	17	6.78	18	20.42	13
impeccable	943	18	5.71	23	14.25	26
staff	929	19	7.20	14	19.89	15
cable car	920	20	5.92	21	14.24	27
pool	898	21	6.98	16	18.72	18
fountain	879	22	4.52	34	11.21	35

Table 3. (*Continued*)

Words	Frequency		Freeman's degree centrality		Eigenvector centrality	
	Frequency	Rank	Coefficient	Rank	Coefficient	Rank
best	871	23	4.64	30	13.18	28
view	831	24	6.15	20	16.46	20
amazing	824	25	4.42	32	12.27	32
shop	815	26	6.27	19	17.65	19
comfortable	762	27	5.22	26	14.99	24
large	750	28	5.25	25	15.54	21
shuttle	723	29	5.65	24	15.07	22
clean	704	30	5.14	27	14.97	25
Eiffel	666	31	4.19	35	11.01	36
experience	659	32	4.38	33	11.66	34
facilities	653	33	4.42	31	12.28	31
enjoy	586	34	4.77	29	12.41	30
huge	584	35	4.04	37	12.06	33
worth	570	36	3.60	40	9.64	42
gondola	555	37	3.57	42	9.26	43
well	533	38	4.81	28	13.02	29
Ferris wheel	481	39	2.18	63	5.33	68
love	476	40	2.60	52	6.85	53
new	472	41	3.11	47	8.24	47
recommend	463	42	4.06	36	10.74	37
fun	441	43	3.20	45	8.42	46
dance	440	44	2.74	49	7.00	51
price	435	45	3.71	38	10.04	39
awesome	419	46	1.74	77	4.76	75
convenient	417	47	3.13	46	8.46	45
lobby	416	48	3.24	44	8.62	44
spacious	411	49	3.59	41	10.60	38
super	408	50	2.70	50	7.39	49
friendly	400	51	3.44	43	9.75	41
swimming	389	52	3.63	39	10.02	40
building	378	53	2.65	51	7.07	50
excellent	365	54	2.07	66	6.07	61
resort	356	55	2.43	55	6.42	57
child	342	56	2.14	64	5.87	63
gorgeous	325	57	2.02	68	5.22	70
better	322	58	2.30	59	6.41	58
expensive	315	59	2.51	53	7.00	52
grand	314	60	2.36	57	6.16	60
entertainment	310	61	2.36	58	6.51	56
store	308	62	2.42	56	6.74	55
buffet	304	63	2.30	60	6.33	59
family	292	64	2.18	62	5.84	64
delicious	273	65	2.45	54	6.76	54
canal	273	66	2.00	69	5.35	67
breakfast	270	67	2.78	48	7.76	48
famous	254	68	2.08	65	5.46	66
batman	250	69	1.23	93	3.07	95
location	237	70	1.81	73	5.07	73
suitable	234	71	1.42	87	3.69	87

Table 3. (*Continued*)

Words	Frequency		Freeman's degree centrality		Eigenvector centrality	
	Frequency	Rank	Coefficient	Rank	Coefficient	Rank
enough	233	72	1.83	72	5.13	71
atmosphere	229	73	1.73	78	4.59	80
special	223	74	1.79	76	4.62	79
environment	221	75	1.40	89	3.90	85
pretty	214	76	1.63	81	4.66	77
airport	214	77	2.23	61	5.89	62
gambling	210	78	1.41	88	4.14	83
entrance	210	79	1.78	75	4.67	76
old	206	80	1.43	85	3.96	84
magnificent	197	81	1.28	91	3.20	93
suite	194	82	1.68	80	4.62	78
bad	192	83	1.28	82	4.37	82
cool	192	84	1.07	99	2.76	98
bathroom	191	85	2.03	67	5.54	65
perfect	190	87	1.24	92	3.29	91
light	190	88	1.54	83	3.68	89
pictures	190	89	1.68	80	4.49	81
bed	189	90	1.88	70	5.25	69
fantastic	179	91	1.18	95	3.15	94
music	178	92	1.39	90	3.35	90
decoration	175	93	1.21	94	3.21	92
diamond	171	94	1.12	96	2.89	96
scenery	170	95	1.11	98	2.89	97
spectacular	169	96	1.12	97	2.66	99
park	168	97	1.43	86	3.69	88
door	167	98	1.45	84	3.78	86
size	166	99	1.47	71	5.09	72
ferry terminal	166	100	1.77	74	4.91	74

CONCOR (CONergence of iterated CORrelation) analysis is an analysis method to find the appropriate similar group by repeated correlation analysis. The system can identify the measure of the number of concurrent keywords in a block by looking at the correlation coefficient between nodes in the block. It forms clusters that include keywords with similarities to each other. To visualize the results, this study uses NetDraw in the UCINET 6.0 program. There are nodes representing keywords represented as blue squares on the network, and the size of the nodes indicates their frequency, as well as the number of links between them. CONCOR analysis results with visibility are shown in **Figure 3**.

Four groups are brought together and named "Entertainment", "Facility", "Experience" and "Atmosphere", depending on the meaning of the keywords. To make it easier to see which group the words belong to, the grouped keywords and the significant keywords, which require close attention, are exhibited in **Table 4**. The choice of group names is based on the characteristics of keywords: "Entertainment" includes "casino", "shopping", "cable car", "gondola" and "Ferris wheel"; "Facility" contains "bathroom", "room", "park", "pool", "tower", "entrance", and "Experience" covers "worth", "well", "enjoy" "beautiful", "expensive", "nice", etc.. "Atmosphere" consists of "gorgeous", "fun", "batman" as well as "luxurious".

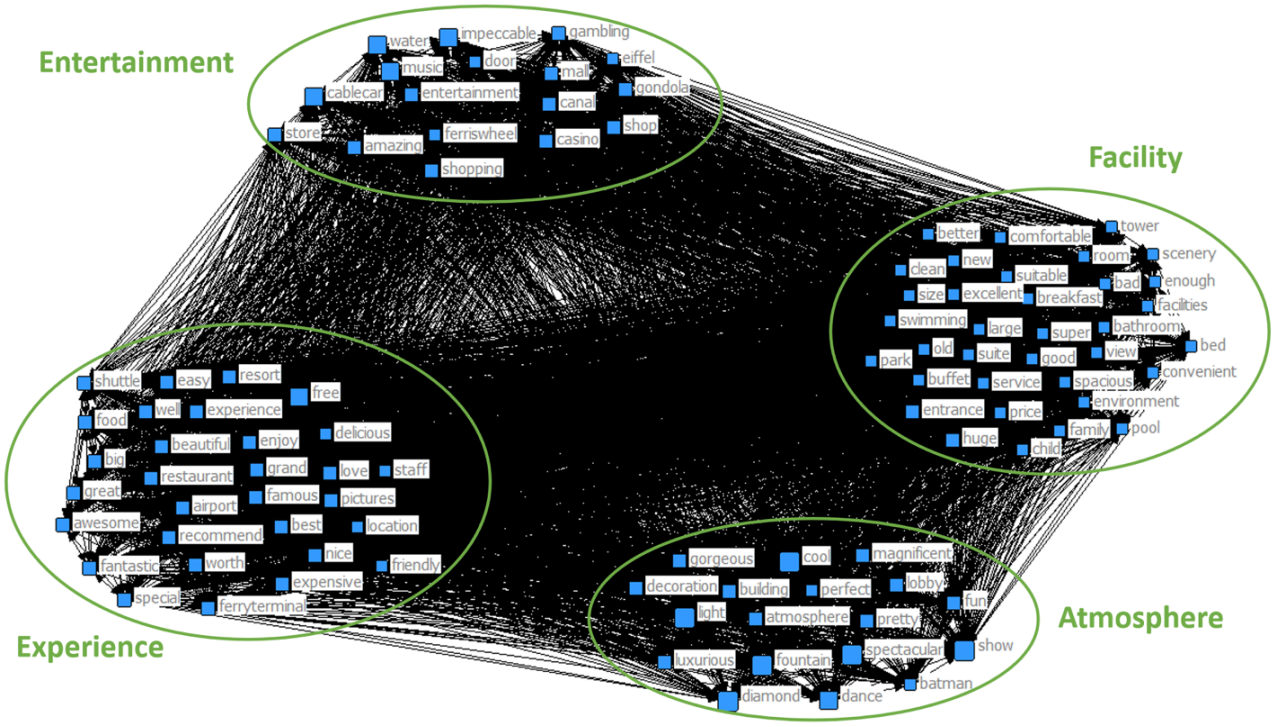

Figure 3. Visualization of CONCOR analysis.

Table 4. Clusterization of CONCOR analysis

Clusters	Extracted words	Significant words
Experience	shuttle/easy/resort/free/food/well/experience/delicious/enjoy/grand/love/staff/pictures/location/nice/recommend/fantastic/awesome/big/beautiful/famous/best/expensive/ferryterminal/friendly/airport/restaurant/special/great/worth	resort/food/well/experience/delicious/enjoy/staff/nice/recommend/fantastic/awesome/big/beautiful/famous/best/expensive/friendly/restaurant/special/great/worth
Entertainment	water/impeccable/gambling/music/door/mall/Eiffel/cablecar/store/amazing/ferriswheel/casino/canal/shop/shopping/gondola/entertainment	gambling/music/mall/Eiffel/cable car/store/Ferris wheel/casino/canal/shop/shopping/gondola
Facility	better/comfortable/tower/clean/new/suitable/room/scenery/size/swimming/old/suite/park/buffet/entrance/huge/price/child/family/pool/environment/spacious/good/super/large/excellent/breakfast/bad/enough/facilities/bathroom/bed/view/convenient/service	comfortable/tower/clean/new/suitable/room/scenery/swimming/old/suite/park/buffet/price/pool/spacious/large/excellent/breakfast/bad/facilities/bathroom/bed/view/convenient/service
Atmosphere	gorgeous/cool/magnificent/decoration/building/perfect/lobby/fun/show/spectacular/batman/dance/diamond/luxurious/light/atmosphere/pretty/fountain	gorgeous/cool/magnificent/decoration/building/perfect/lobby/fun/show/spectacular/batman/dance/diamond/luxurious/light/atmosphere/pretty/fountain

4.3. Factor analysis

The factor analysis of the extracted keywords was employed to discover the connections and commonalities between word frequencies. Through the component matrix after oblique rotation, the less influential factors were excluded, while the more influential factor combinations with commonality were retained. When the factor loading threshold was set to 0.400, the factors needed to have eigenvalues greater than 1.0 and a high proportion of the total variance explained. Factors with loadings greater than 0.400 and loaded on a single factor were retained. After seven elimination pro-

cesses, four factors containing 15 keywords were generated, covering 46.097% of all the variances.

Table 5 shows the results of the factor analysis. The value of KMO (Kaiser Meyer Olkin) is 0.615, exceeding the threshold of 0.6, thus verifying that this study is applicable for factor analysis. Bartlett's test of sphericity value (X^2) is 28,466.896, and the correlation matrix presents overall significance at the level of p value less than 0.001. The results of the above data suggest that the data in this study is suitable for exploratory factor analysis and presents a normal distribution of multiple variables. These four factors are named "Consumption" (Factor 1), "Transportation" (Factor 3), "Room Service" (Factor 2), and "Entertainment" (Factor 4). Factor 1 contains "shop", "restaurant", "shopping", and "mall", which are related to consumption behavior. Factor 2 includes "room", "staff", "clean", "friendly", and "service", which are bound up with hotel room service. Factor 3 covers "shuttle", "ferry terminal", and "airport", which is concerned with the transportation mode of visitors to the hotel. Factor 4 includes "cable car", "dance", and "music", all of which are related to entertainment facilities or performances in the hotel.

Table 5. Result of the factor analysis

	Words	Factor loading	Eigen value	Variance (%)
Consumption	shop	0.892	2.315	14.410
	casino	0.434		
	shopping	0.893		
	mall	0.590		
Room service	room	0.585	1.846	12.635
	staff	0.714		
	clean	0.496		
	friendly	0.611		
	service	0.553		
Transportation	shuttle	0.718	1.407	9.843
	ferry terminal	0.669		
	airport	0.682		
Entertainment	cable car	0.824	1.346	9.209
	dance	0.833		
	music	0.605		
Total variance (%) = 46.097%				
KMO (Kaiser Meyer Olkin) = 0.615				
Bartlett chi-square (p) = 28,466.896 ($p < 0.001$)				

4.4. Linear regression analysis

In the final stage, regression analysis was performed on the clusters and reputation degrees formed by the results of factor analysis, and the results are shown in **Table 6**. There are four independent variables in total: Consumption (C), Room Service (RS), Transportation (T), Entertainment (E), and a dependent variable: Online Reputation (OR). The results reveal that the total variance explained for the four independent variables was 6% ($R^2 = 0.06$), and the standard error of the estimated value is 0.432. The correlation between independent and dependent variables is quite low, because many factors that affect customer experience and reputation may not be included in corresponding factors due to their low frequency in online hotel reviews. In addition, this study selected online customer reviews of five integrated resorts in Macao, which may have affected the correla-

Table 6. Result of linear regression analysis

Model	Unstandardized coefficients		Standardized coefficients	t	*p*
	β	Std. error	β		
(Constant)	4.539	0.007	-	658.911***	0.000
Consumption (C)	0.019	0.007	0.023	2.699*	0.007
Room service (RS)	0.055	0.007	0.069	7.919***	0.000
Transportation (T)	–0.001	0.007	–0.002	–0.193	0.847
Entertainment (E)	0.028	0.007	0.035	4.004***	0.000

*Notes: Dependent variable: Online reputation (OR); $R^2 = 0.06$; adjusted $R^2 = 0.06$; $F = 21.518$; * $p < 0.05$; ** $p < 0.005$; *** $p < 0.001$.*

tion between keywords.

In regression models, it is impossible to estimate output variables by covering all relevant variables, such as opinions in text mining data; thus, the R^2 value may be very low. For instance, Kim and Noh used regression analysis and factor analysis to study online reviews of washing machines, and the R^2 value was 12.5%[61]. Factor analysis and linear regression analyses have also been used in studies of hotel reviews, with R^2 values at 12%[58].

"Consumption" (C, β = 0.019, p = 0.007), "Room Service" (RS, β = 0.055, p = 0.000), and "Entertainment" (E, β = 0.028, p = 0.000) are all significant at the level of p values significant at less than 0.05 level and are positively related with online reputation. "Transportation" (T, β = –0.001, p = 0.847) failed the significance test of p value and is negatively related to online reputation.

Meanwhile, this study considered the possible correlation between the estimated predictors and examined the problem of multicollinearity among factors by the variance inflation factor (VIF) index. The variance inflation factor (VIF) of the predictors was between 1.00 and 1.10, respectively, all lower than the threshold of 3. The results showed no significant correlation between the predictors. Therefore, based on the unstandardized β, the regression equation is:

$$OR = 4.539 + 0.019C^{**} + 0.055FB^{***} - 0.001T + 0.028E^{***} \quad (1)$$

The "Room Service" factor holds the highest standardized coefficients, which means this experience aspect of the hotel customer is the most important factor associated with online reputation positive significantly. Reviews such as "Very nice hotel. Clean and staff are all friendly," and "Room is huge and all-suite room. Excellent views from the room." are related to the integrated resort experience based upon "Room Service" attributes.

5. Discussion and implication

5.1. Main findings

This study is aimed to improve customer experience and online reputation with online hotel reviews. In order to analyze online reputation based on hotel reviews, the first step is to extract keywords through text mining, and then calculate the usage frequency of words used by customers. This study utilized SCTM 3.0 to perform text mining from the online review, RStudio to refine the online review, and lastly, UCINET 6.0 to visualize the data. The CONCOR analysis was performed

to cluster the top keywords into a certain specific cluster, which can help to clarify the implication for empirical application. This study analyzed 99 top keywords through frequency analysis by using big data followed by centrality analysis (Freeman's degree and eigenvector centrality), CONCOR analysis, factor analysis, and lastly, linear regression analysis.

Based on the frequency analysis, Freemans Degree Centrality, and Eigenvector Centrality analysis of the top 99 keywords, this study figures out their connectivity and the most affected keywords among them. According to the CONCOR analysis, there were the "Entertainment", "Experience", "Facility", and "Atmosphere" clusters, which consist of words describing each cluster title. For example, the word "friendly", "beautiful", "food", "enjoy" and "fantastic" are the reflection of customers' special emotions. The words "gambling", "music", "casino" and "shopping" are a reflection of entertainment.

Linear regression analysis provides four independent variables: "Consumption" (C, $\beta = 0.019$, $p < 0.05$), "Room Service" (RS, $\beta = 0.055$, $p < 0.001$), and "Entertainment" (E, $\beta = 0.028$, $p < 0.001$). All of the variances are explained by the four variables were 6% ($R^2 = 0.06$). The significance level for two variables out of four was lower than 0.001, and one variable was significant at 0.005. According to the standardized coefficient value, three factors positively impacted the average guest satisfaction ratings: "Consumption", "Room Services", and "Entertainment". However, and "Transportation" (T, $\beta = –0.001$, $p = 0.847$) variable had been identified as having a non-significant negative impact on guest reputation.

There were a number of factors such as "Room Service" with the words "room", "staff", "clean", and "service" that have a high correlation with guest satisfaction and have a positive impact. We can also conclude that integrated resorts in Macao provide high-quality room service which contributes to a higher level of reputation for guests. As explored by Anagnostopoulou *et al*.[47], in their study on the relationship between hotel online reputation and hotel profitability, the two most important hotel attributes for financial profitability are hotel location and room quality. The guest room product is an important part of the integrated resort products in Macao, bringing in major revenue second only to the gaming business; building a good product also produces a positive online reputation, which brings a positive influence on the positive and sustainable development of business performance.

The results showed that the content of "Entertainment", including "dance", "music" and "cable car" showed a positive impact on the online reputation of integrated resorts. The products of entertainment projects are highlights of the integrated resorts, many of which in Macao have built entertainment facilities with different themes as their distinctive symbols. For example, the Venetian Macao resort has Venice, a distinctive European city, as its theme, creates a unique city sightseeing streetscape in the shopping area, and sets up a Venetian gondola cruise as an experience item for tourists, having a positive impact on the online reputation of integrated resorts[62]. These entertainment programs are generally not included in the regular hotel operations and present a positive impact on reputation in the results of this study, reflecting the unique competitiveness of integrated resorts in their operations. It has been noted in some studies that gaming companies are willing to invest huge amounts of money in showroom entertainment, largely because the tourist flow attracted by these venues will increase gaming volume[63]. Moreover, the results of this study demonstrate through customer online reviews that customer experience with entertainment and shopping in the integrated resorts can positively impact the online reputation of the integrated resorts.

Noticeably, although "Transportation" in the results of this study did not have a significant impact on online reputation, the influence relationship presented was negatively correlated. It has been pointed out that the accessibility of a hotel significantly affects the choice and experience of customers[64], thus this is also a concern for integrated resort operators.

5.2. Implications

The reviews posted by customers after actual consumption experience can directly reflect their experience, and the online reviews can form influential and transmitted reputations. There is still a certain gap in the research on the reputation reflected by customer online reviews of integrated resorts, and Macao is a typical tourism destination with a large-scale integrated resort industry. Therefore, this study can fill the research gap on integrated resorts using big data and other methods from the theoretical perspective.

Meanwhile, from the practive perspective, it can help integrated resort operators in Macao to discover the content of customer feedback in the actual experience as well as the actual influencing factors on reputation, so as to provide decision-making suggestions for maintaining the reputation of integrated resorts and even improving performance. Even though the impact of COVID-19 has limited the management and development of integrated resorts in Macao, many of the negative effects are temporary in terms of pandemic development patterns, and destination managers and integrated resort operators should be prepared for "revenge travel" after the opening of the pandemic policy to reap more economic benefits[65]. The first finding of this study allows resort managers to recognize the important attributes that influence online reputation. With these attributes in place, resort managers can use them as a basis for evaluating and improving management to achieve a more positive online reputation. More importantly, the aim of these activities is to attract and rebuild the confidence of tourists, which is the main priority today[66]. By creating a positive online reputation, other potential guests' booking intentions can be influenced, resulting in more performance.

5.3. Limitations

However, the study shows the limitations of data collection. For one thing, the data collected in this study is limited, since the study's samples are only from Google Travel. Future research should keep a check on whether there are differences in customer online reviews across different platforms. For another, the collected text is analyzed based on the frequency of a single word, making it difficult to understand the word's additional meaning. In future research, researchers should conduct further positive and negative analyses, as well as sentiment analysis, to better understand customer experience and satisfaction, which can provide a stronger strategy for the hotel industry. As part of the hit research topic, which aims to improve the understanding of how big data analyses can contribute to social and environmental development as well as economic and financial sustainability in line with the sustainable development goals (SDGs)[67], the future study can address how online reviews and big data contribute to the Sustainable Development Goals in gaming tourism destinations.

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Author contributions

Co-first authors: MT and XZ contributed equally; research study design: MT, HSK; research performance: MT, XZ; data analysis: MT, XZ, HSK; manuscript writing: MT, XZ, JW; editorial changes in the manuscript: JW. All authors read and approved the final manuscript.

Conflict of interest

The authors declare no conflict of interest.

Ethics approval and consent to participate

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References

1. Ahn J, Thomas TK. The role of customers' perceived values of integrated resort brands in destination. Journal of Destination Marketing & Management 2020; 15(3): 1–3. doi: 10.1016/j.jdmm.2019.100403.
2. Gao BW, Lai IKW. The effects of transaction-specific satisfactions and integrated satisfaction on customer loyalty. International Journal of Hospitality Management 2015; 44: 38–47. doi: 10.1016/j.ijhm.2014.10.004.
3. Philander K, Zhong Y. Twitter sentiment analysis: Capturing sentiment from integrated resort tweets. International Journal of Hospitality Management 2016; 55: 16–24. doi: 10.1016/j.ijhm.2016.02.001.
4. Yang W, Zhang L, Mattila A. Luxe for less: How do consumers react to luxury hotel price promotions? The moderating role of consumers' need for status. Cornell Hospitality Quarterly 2016; 57(1): 82–92. doi: 10.1177/1938965515580133.
5. McCartney G. Securing Chinese mass market visitation to Cotai's integrated resorts (IRs): Determinants of gaming and non-gaming attributes that influence IR selection. Tourism and Hospitality Research 2020; 20(3): 317–330. doi: 10.1177/1467358419873063.
6. Ahn J, Back KJ. Influence of brand relationship on customer attitude toward integrated resort brands: A cognitive, affective, and conative perspective. Journal of Travel & Tourism Marketing 2018; 35(4): 449–460. doi: 10.1080/10548408.2017.1358239.
7. Ieong CY, Lam D. Role of internal marketing on employees' perceived job performance in an Asian integrated resort. Journal of Hospitality Marketing & Management 2016; 25(5): 589–612. doi: 10.1080/19368623.2015.10679664.
8. Tham A, Huang D. Game on! A new integrated resort business model. Tourism Review 2019; 74(6): 1153–1166. doi: 10.1108/TR-03-2017-0036.
9. Lou NM, So ASI, Hsieh YJ. Integrated resort employee competencies: A Macau perspective. International Journal of Contemporary Hospitality Management 2019; 31(1): 247–267. doi: 10.1108/IJCHM-07-2017-0431.

10. Simpson T. Macao's post-Mao grand tour: China's gamble on urbanization in the Venetian Macao resort. Journal of Tourism and Cultural Change 2021; 20(5): 678–698. doi: 10.1080/14766825.2021.1998085.
11. McCartney G. The CAT (Casino tourism) and the MICE (meetings, incentives, conventions, exhibitions): Key development considerations for the convention and exhibition industry in Macao. Journal of Convention & Event Tourism 2008; 9(4): 293–308. doi: 10.1080/15470140802493380.
12. McCartney G. With or without you? Building a case for further MICE (meetings, incentive travel, vonventions, exhibitions) development in Macao. Journal of Convention & Event Tourism 2014; 15(3): 173–197. doi: 10.1080/15470148.2014.906335.
13. Mary EU, Kong TIW, Wan YKP. Senior travelers to integrated resorts: Preferences, consuming behaviors and barriers. Journal of Quality Assurance in Hospitality & Tourism 2020; 21(3): 297–319. doi: 1080/1528008X.2019.1659209.
14. Tang M, Kim HS. An exploratory study of electronic word-of-mouth focused on Casino hotels in Las Vegas and Macao. Information 2022; 13(3): 135. doi: 10.3390/info13030135.
15. Lau VMC, Ren L, Yang FX. CSR and casino hotel branding: The joint moderation of CSR misfit and corporate awareness. Journal of Hospitality and Tourism Management 2021; 49: 375–384. doi: 10.1016/j.jhtm.2021.10.011.
16. Ahn J, Back KJ. Integrated resort: A review of research and directions for future study. International Journal of Hospitality Management 2018; 69: 94–101. doi: 10.1016/j.ijhm.2017.10.017.
17. Ho H. COVID-19 Pandemic: Impact and implications for Macau casino. Gaming Law Review 2020; 24(8): 563–568. doi: 10.1089/glr2.2020.0023.
18. Latest entry quarantine measures of Macao [Internet]. Macao: Government Information Bureau; 2023. Available from: https://www.gcs.gov.mo/ncv/annex/index.html?p=0&l=zh-hans.
19. Gursoy D, Chi CG. Effects of COVID-19 pandemic on hospitality industry: Review of the current situations and a research agenda. Journal of Hospitality Marketing & Management 2020; 29(5): 527–529. doi: 10.1080/19368623.2020.1788231.
20. Chang KC, Cheng YS. How online service recovery reviews influence behavioral intentions in the hospitality context: Regulatory focus and loss aversion perspectives. Journal of Hospitality and Tourism Management 2021; 46: 440–455. doi: 10.1016/j.jhtm.2021.01.014.
21. Wan YKP, Li X, Lau VMC, Dioko L. Destination governance in times of crisis and the role of public-private partnerships in tourism recovery from Covid-19: The case of Macao. Journal of Hospitality and Tourism Management 2022; 51: 218–228. doi: 10.1016/j.jhtm.2022.03.012.
22. Deephouse DL. Media reputation as a strategic resource: An integration of mass communication and resource-based theories. Journal of Management 2000; 26(6): 1091–1112. doi: 10.1177/014920630002600602.
23. Ramos CM, Casado-Molina AM. Online corporate reputation: A panel data approach and a reputation index proposal applied to the banking sector. Journal of Business Research 2021; 122: 121–130. doi: 10.1016/j.jbusres.2020.08.061.
24. Veh A, Göbel M, Vogel R. Corporate reputation in management research: A review of the literature and assessment of the concept. Business Research 2019; 12(2): 315–353. doi: 10.1007/s40685-018-0080-4.
25. Sparks BA, Browning V. The impact of online reviews on hotel booking intentions and perception of trust. Tourism Management 2011; 32(6): 1310–1323. doi: 10.1016/j.tourman.2010.12.011.
26. Grönroos C. Conceptualising value co-creation: A journey to the 1970s and back to the future. Journal of Marketing Management 2012; 28(13–14): 1520–1534. doi: 10.1080/0267257X.2012.737357.
27. Park YS, Park YR. Analysis of creative economic effects on resorts complex. Global Economic Review 2014; 26(26): 117–148.
28. Saner R, Yiu L, Filadoro M. Tourism development in least developed countries: Challenges and opportu-

nities. Sustainable Tourism: Breakthroughs in Research and Practice 2019; 27. doi: 10.4018/978-1-5225-7504-7.ch006.

29. Costa G, Glinia E, Goudas M, Antoniou P. Recreational services in resort hotels: Customer satisfaction aspects. Journal of Sport & Tourism 2004; 9(2): 117–126. doi: 10.1080/14775080410001732541.
30. Andriotis K. Integrated resort development: The case of Cavo Sidero, Crete. Journal of sustainable Tourism 2018; 16(4): 428–444. doi: 10.2167/jost777.0.
31. Stiles RB, See-Tho W. Integrated resort development in the Asia Pacific region. Travel & Tourism Analyst 1991; (3): 22–37.
32. Nunkoo R, Ramkissoon H. Modeling community support for a proposed integrated resort project. Journal of Sustainable Tourism 2010; 18(2): 257–277. doi: 10.1080/09669580903290991.
33. Ahn J, Back KJ, Boger C. Effects of integrated resort experience on customers' hedonic and eudaimonic well-being. Journal of Hospitality & Tourism Research 2019; 43(8): 1225–1255. doi: 10.1177/1096348019861740.
34. Ahn J, Back KJ, Lee CK. A new dualistic approach to brand attitude: The role of passion among integrated resort customers. International Journal of Hospitality Management 2019; 78: 261–267. doi: 10.1016/j.ijhm.2018.09.008.
35. So SIA, Li M, Lehto X. Perceptions of convention attendees towards integrated resort: A case study of Macau. International CHRIE Conference—Refereed Track 2011; 18: 1–12.
36. Ahn J, Back KJ. Influence of brand relationship on customer attitude toward integrated resort brands: A cognitive, affective, and conative perspective. Journal of Travel & Tourism Marketing 2018; 35(4): 449–460. doi: 10.1080/10548408.2017.1358239.
37. Luo JM, Chau KY, Fan Y, Chen H. Barriers to the implementation of green practices in the integrated resort sector. SAGE Open 2021; 11(3): 1–15. doi: 10.1177/21582440211030277.
38. Analysis report of statistical indicator system for moderate economic diversification of Macao [Internet]. Macao: Macao Trade and Investment Institute; 2020. Available from: https://www.dsec.gov.mo/getAttachment/ecfdfaca-e069-4932-8cdc-fbd3cc69dd5c/C_SIED_PUB_2020_Y.aspx.
39. Sheng M, Gu C. Economic growth and development in Macau (1999–2016): The role of the booming gaming industry. Cities 2018; 75: 72–80. doi: 10.1016/j.cities.2018.01.003.
40. Balmer JM, Greyser SA. Corporate marketing: Integrating corporate identity, corporate branding, corporate communications, corporate image and corporate reputation. European Journal of Marketing 2006; 40(7): 730–741. doi: 10.1108/03090560610669964.
41. Bianchi E, Bruno JM, Sarabia-Sanchez FJ. The impact of perceived CSR on corporate reputation and purchase intention. European Journal of Management and Business Economics 2019; 28(3): 206–221. doi: 10.1108/EJMBE-12-2017-0068.
42. Becerra-Vicario R, Ruiz-Palomo D, Fernández-Miguélez SM, Gutiérrez-Ruiz AM. Examining the effects of hotel reputation in the relationship between environmental performance and hotel financial performance. Journal of Hospitality and Tourism Management 2022; 53: 10–20. doi: 10.1016/j.jhtm.2022.08.012.
43. Liu X, Li C, Nicolau JL, Han M. The value of rating diversity within multidimensional rating system: Evidence from hotel booking platform. International Journal of Hospitality Management 2023; 110: 103434–103442. doi: 10.1016/j.ijhm.2023.103434.
44. Sharma A, Park S, Nicolau JL. Testing loss aversion and diminishing sensitivity in review sentiment. Tourism Management 2020; 77: 104020–104027. doi: 10.1016/j.tourman.2019.104020.
45. Marchiori E, Cantoni L. The online reputation construct: Does it matter for the tourism domain? A literature review on destinations' online reputation. Information Technology & Tourism 2011; 13(3): 139–159. doi: 10.3727/109830512X13283928066715.

46. Proserpio D, Zervas G. Online reputation management: Estimating the impact of management responses on consumer reviews. Marketing Science 2017; 36(5): 645–665. doi: 10.1287/mksc.2017.1043.
47. Anagnostopoulou SC, Buhalis D, Kountouri IL, *et al*. The impact of online reputation on hotel profitability. International Journal of Contemporary Hospitality Management 2019; 32(1): 20–39. doi: 10.1108/IJCHM-03-2019-0247.
48. Xu J, Wang X, Zhang J, *et al*. Explaining customer satisfaction via hotel reviews: A comparison between pre- and post-COVID-19 reviews. Journal of Hospitality and Tourism Management 2022; 53: 208–213. doi: 10.1016/j.jhtm.2022.11.003.
49. Lyu J, Khan A, Bibi S, *et al*. Big data in action: An overview of big data studies in tourism and hospitality literature. Journal of Hospitality and Tourism Management 2022; 51: 346–360. doi: 10.1016/j.jhtm.2022.03.014.
50. Mousavian S, Miah SJ, Zhong Y. A design concept of big data analytics model for managers in hospitality industries. Personal and Ubiquitous Computing 2023; 1: 847. doi: 10.1007/s00779-023-01714-3.
51. Ban HJ, Choi H, Choi EK, *et al*. Investigating key attributes in experience and satisfaction of hotel customer using online review data. Sustainability 2019; 11(23): 6570–6583. doi: 10.3390/su11236570.
52. Dang S, Ahmad PH. Text mining: Techniques and its application. International Journal of Engineering & Technology Innovations 2014; 1(4): 22–25.
53. Ban HJ, Kim HS. Understanding customer experience and satisfaction through airline passengers' online review. Sustainability 2019; 11(15): 4066–4083. doi: 10.3390/su11154066.
54. Qi S, Chen N. Understanding Macao's destination image through user-generated content. Journal of China Tourism Research 2019; 15(4): 503–519. doi: 10.1080/19388160.2019.1577199.
55. Drieger P. Semantic network analysis as a method for visual text analytics. Procedia-social and Behavioral Sciences 2013; 79: 4–17. doi: 10.1016/j.sbspro.2013.05.053.
56. Artz D, Gil Y. A survey of trust in computer science and the semantic web. Journal of Web Semantics 2007; 5(2): 58–71. doi: 10.1016/j.websem.2007.03.002.
57. Tao S, Kim HS. Cruising in Asia: What can we dig from online cruiser reviews to understand their experience and satisfaction. Asia Pacific Journal of Tourism Research 2019; 24(6): 514–528. doi: 10.1080/10941665.2019.1591473.
58. Shadiyar A, Ban HJ, Kim HS. Extracting key drivers of air passenger's experience and satisfaction through online review analysis. Sustainability 2020; 12(21): 9188–9208. doi: 10.3390/su12219188.
59. Roy G. Travelers' online review on hotel performance: Analyzing facts with the theory of lodging and sentiment analysis. International Journal of Hospitality Management 2023; 111: 103459–103473. doi: 10.1016/j.ijhm.2023.103459.
60. Wang J, Dagvadorj A, Kim HS. Research trends of human resources management in hotel industry: Evidence from South Korea by semantic network analysis. Culinary Science & Hospitality Research 2021; 27(9): 68–78. doi: 10.20878/cshr.2021.27.9.007.
61. Kim HS, Noh Y. Elicitation of design factors through big data analysis of online customer reviews for washing machines. Journal of Mechanical Science and Technology 2019; 33(6): 2785–2795.
62. Soligo M, Abarbanel B. Theme and authenticity: Experiencing heritage at the Venetian. International Hospitality Review 2020; 34(2): 153–172. doi: 10.1108/IHR-03-2020-0008.
63. Suh E, Lucas AF. Estimating the impact of showroom entertainment on the gaming volumes of Las Vegas hotel-casinos. International Journal of Hospitality Management 2011; 30(1): 103–111. doi: 10.1016/j.ijhm.2010.03.009.
64. Yang Y, Mao Z, Tang J. Understanding guest satisfaction with urban hotel location. Journal of Travel Research 2018; 57(2): 243–259. doi: 10.1177/0047287517691153.

65. Wang J, Xia L. Revenge travel: Nostalgia and desire for leisure travel post COVID-19. Journal of Travel & Tourism Marketing 2021; 38(9): 935–955. doi: 10.1080/10548408.2021.2006858.
66. Rodríguez-Antón JM, Alonso-Almeida MM. COVID-19 impacts and recovery strategies: The case of the hospitality industry in Spain. Sustainability 2020; 12(20): 8599–8616. doi: 10.3390/su12208599.
67. Wang J, Ban HJ, Kim HS. Big data and sustainability in the tourism industry. Sustainability 2022; 14(13): 7697. doi: 10.3390/su14137697.