Perception and Appraisal of Singapore's Integrated Resort Casino Users Using Online Reviews: Cases of Korean

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Abstract

Purpose- Keywords from online reviews by Koreans who visited integrated resort (IR) casino in Singapore were derived to provide reference to future IR operation managements.

Design/methodology/approach- Through literature review, the current study examined the trends on online reviews and the current status of Singaporean IR. Subsequently, two analyses were carried out; keywords were derived from online reviews, and co-occurrence network analysis was performed on the relationships between extracted components.

Findings- After the word 'casino,' keywords such as 'passport,' 'game,' 'table,' 'floor,' 'drink,' 'place,' 'time' showed high frequency. Positive keywords were associated with reviews about friendly employees, free drinks, and casual dress code. On the other hand, negative keywords were associated with reviews about lack of ventilation, uncomfortable table, high betting amount, inconvenience in communication, and outdated poker machines.

Research implications or Originality- The keywords are expected to be valuable evaluative data, applicable to future IR casino operation. In addition, as the demand for IR establishment increases around the world, including in Japan, it is necessary to use various data sources to form expectations. The current study has limited its subject to Koreans, and further study is required on how the perceptions found in online reviews are different for users of other nationalities.

Keywords: Online Reviews, Singapore, Integrated Resort Casino, Text Analysis, KH Coder

Ⅰ．Introduction

In Asia, integrated resort (IR) facilities including casinos are increasingly becoming popular in the tourism industry. As successful cases of IR have been observed with positive functions such as influx of foreign currency, increasing employment, and securing tax revenues, IR is developing into a game and leisure industry with high added value such as the development of the tourism industry. From a national point of view, resort complexes play an important role in enhancing the expected performance of the tourism industry and increasing economic profits. In particular, in the case of Singapore, it has been evaluated that the tourism industry has been successfully renewed with the opening of two IRs including a casino in 2010 (Kim Jee-Seon, 2020). The "Act on Development of Specified Integrated Resort Districts" was passed by the Japanese government to open an IR by 2025, but due to the global epidemic of SARS CoV-2 in 2020, its operation plans and promotion was delayed, and the completion of the facility was postponed to 2027. As such implementation of IR is on the rise, for countries that plan to develop IR facilities in the future, it is important to understand the experiences and needs of actual users for IR operation and management. To this end, in order to reflect the user's point of view in IR operation and management, it is necessary to understand the evaluation and perception of IR users. Currently, the world is connected through online social network services (SNSs), where experiences and information are shared, which in turn influence each other's perceptions (Lund et al., 2018).

Although SNS data has fundamental issues such as lack of objectivity, reliability, and expertise (Chang and Nam, 2012), large amounts of data unattached to specific interests are generated voluntarily and are not limited to specific time and place, thus not only is it easily accessible, but also available for processing. One of the ways to acquire information about a place's perception on social networks is online reviews. Online reviews are customer oriented, and provide access to the end users' perspectives (Kavaratzis et al., 2005). In addition, the reviews can be utilized as important information for service quality improvement and marketing (Litvin et al., 2008). Moreover, it can be said that online review writing and reading have relatively clearer objectives, such as to provide and acquire information, than other SNS activities. In particular, in purchasing high-involvement products, various online re-

views are taken into account to make wiser choices or find better alternatives. For example, the more expensive the tourism product is, the more extreme the impact of online reviews are, as it is rare to have had direct experience of the product before purchase (Park and Byeong, 2013).

The purpose of this study is to derive keywords on the perception and appraisal by Koreans who have visited two IR casinos in Singapore, a country with one of the most advanced IR areas in Asia, through online reviews, and provide references available for future IR operation and management. In addition, co-occurrence analysis showing the relationship between words is carried out on the derived keywords. It is expected that the result of the study will provide data for evaluation, applicable to operation management of IR casinos in the future.

The structure of this study is as follows.

Through literature review, the current study examined the trends of researches on online reviews and the current status of Singaporean IR. Subsequently, two analyses were carried out; first, keywords were extracted using online reviews, and second, co-occurrence network analysis was performed on the relationship between extracted components. Finally, the practical meaning of this study and future tasks are mentioned.

Ⅱ. Literature Review

1. Online Review Research Trends

Due to the development of information technology, the need for integrated communication between producers and consumers has increased. Therefore, a communication model to form a two-way relationship between producers and consumers has been continuously developed to manage this. The information created by consumers will serve as useful advice to potential consumers, who search for online reviews prior to making purchases. Information created by online reviewers can be delivered to a large number of recipients, regardless of time and space, and the traditional oral information transmission method is no match for the speed and scale of proliferation of these online reviews (Hyeon-Min Kim, 2009; Jin-Hee Lee, Seon-Jae Do, Hwang Jang-seon, 2011). As online review has become an essential element in consumption, various research has been conducted to understand the perception of

users contained in online review data on various subject matters. Most of the research that analyzes online reviews is aimed at goods services such as products, movies, and hotels, and many studies are being conducted to understand consumers' tendencies, satisfaction after use, and intentions of continuous usage.

Oh et al. (2020) conducted a study on changing perceptions on hotel casinos through big data analysis. From unstructured data created from online communities, blogs, and social media, keywords were derived on the perception of Koreans about hotel casinos, and social network analysis of hotel casinos were conducted through the keywords. Furthermore, changes in Koreans' perceptions of hotel casinos were analyzed through social network analysis.

Bae (2016) derived determining factors of consumption value using post-adoption beliefs variables from online reviews concerning social commerce, and analyzed how these factors affect satisfaction and willingness to repurchase. Lee (2013) analyzed the dimension of value perceived by hotel users through a qualitative analysis of hotel reviews left online through data categorization and word separation. In addition, as most of the review data is atypical or semi-structured text (Buneman, 1997; Byun et al., 2016), studies are continuously being conducted on using text mining to quantify and analyze customer reviews. Cho et al. (2014) carried out online review text mining related to movies, and developed the first box office performance prediction model for each movie through discriminant analysis. Byun et al. (2016) classified user reviews into evaluation criteria, presented a methodology that would provide a summary of noteworthy information, and applied it to online hotel reviews so that detailed information could be identified at a glance.

Kim and Kunieda (2020) carried out their study by utilizing data from the travel information site Tripadvisor. From the Korean version of the Tripadvisor, they extracted keywords and analyzed interests, desires, perceptions, and attitudes of customers on Japanese tourist destinations Hokkaido and Fukuoka and analyzed travel destination selection behavior.

Furthermore, to present a methodology that can effectively analyze service use experience with online review, there were researches utilizing big data analysis through Latent Dirichl et allocation (LDA) topic modeling (Jin et al., 2013; Xianghua et al., 2013; Chae et al., 2015; Park, 2015), while analyzing the frequency of index words and the weight of Term Frequency - Inverse Document Frequency (TF-IDF)

to calculate the similarity of reviews (Jeon and Ahn, 2015), and proposing systems to classify and visualize online comments (Lee et al., 2009). Also, sentiment analysis research on online review text was also conducted (Choi et al., 2016; Lee et al., 2016; Lee et al., 2017).

As such, research on identifying various characteristics through text mining techniques using SNS has been continuously conducted. This study attempts to conduct text mining on Singaporean IR casino user reviews, as the subject has not been touched upon in previous studies.

2. IR status of Singapore

Singapore currently has two integrated resorts, which include casinos founded as a national policy in 2010. One of them is Resorts World Sentosa, which has opened for business on February 2010, on Sentosa Island (located in the southern part of Singapore's main island and connected to the main island by road and rail), which has been known for its tourism industry since the 1970s. Another is Marina Bay Sands, located on a reclaimed land next to the Central Business District on the main island of Singapore, which partially opened in April 2010 and became fully operational later in June. Marina Bay Sands is oriented towards customers on business trips or participants of international conferences, and thus in addition to a casino, which is responsible for 70% of its profits, it houses a large international conference hall, an international exhibition hall, and an Art Science Museum, while the three skyscrapers connected to its Skypark has become one of the symbols of Singapore. It has a total floor area of 15.5 hectares, a shopping mall filled with luxury brand stores, and also includes a hotel with about 2,600 rooms. The casino area is a four-story structure, with the 1st and 2nd floors being the main floors (for general customers), and the 3rd and 4th floors being special floors. White the casino allows free entry for foreign guests, it imposes a high admission fee on Singaporeans as part of the control policies to deter gambling. In other words, although regional promotion by foreigners' use of IR is welcomed, in consideration of involvement of Singaporean corporations and excessive visits of locals, the negative aspects of casinos (gambling obsession, decreased work motivation, etc.) are taken into consideration, managing possible risks (Kim Jee-Seon, 2020). As such, while IRs centered around casinos also have economic effects such as tourism promotion, job creation, and contribution to na-

tional and regional economy, they may also result in increase in gambling addiction and organized crime, deterioration of work ethics, and deterioration of national and regional image. In Singapore, both aspects coexist.

Fig. 1 Marina Bay Sands

Source: Jee-Seon Kim (2017)

Fig. 2 Resorts World Sentosa

Source: Jee-Seon Kim (2017)

As such, by analyzing the perceptions and appraisals of users' experience according to online reivews of Singaporean IR casinos, where both positive and negative factors coexist, it is expected that the result will be applicable to countries that are preparing to open IR, including Japan, in the future.

Ⅲ．Investigation Method

1. Research Subject

In this study, a qualitative survey was conducted to extract keywords from the Korean version of the travel review site "Tripadvisor." The texts are related to the interest of site users after using Singaporean IR casino and their perception and appraisal of their experience from the Korean version of the travel review site "Trip advisor". The period of interest was 10 years from 2010 to 2019, and two Singaporean IRs, Marina Bay Sands and Resorts World Sentosa, were searched. Also, the word "casino" was added to the search engine. Excluding reviews by those of other nationalities that were merely translated into Korean, 763 reviews of Marina Bay Sands and 389 reviews of Resorts World Sentosa were found for analysis.

2. Research Method

2.1. Analysis Method

In this study, analysis was performed using KH Coder, a software dedicated to quantitative textual analysis. KH Coder is a tool to organize, analyze and understand data by digitizing text data such as open-ended questionnaires, interview records, and newspaper articles through computer coding and applying quantitative analysis techniques. In addition, it automatically omits the proposition and auxiliary verbs, and it organizes the number of word occurrences in each data to enable multivariate interpretation. KH Coder makes it possible to draw a network in which words with similar appearance patters are grouped together, that is, words with a high chance of appearing simultaneously within the same content, are connected with lines (Higuchi, 2014).

2.2. Text Mining

Text mining is one of the fields of data mining, and it is a method of extracting meaningful data by modeling and structuring unstructured text data using mechanical algorithms. (Feldman and Sanger, 2007; Hearst, 2003; Daniel, 2015). In addition, text mining is an exploratory data analysis process that discovers useful information that were previously unknown. In other words, it is a process of structuring input text from large data, inducing relationships and patterns within the structured data through various mechanical algorithms, and understanding the meaning while reducing the data.

Through text mining, word frequency analysis using KH Coder and co-occurrence word network analysis were conducted, suggesting relationships between extracted words.

IV. Results and Discussion

1. Major Keywords Analysis of the Singapore's IR

1.1. Marina Bay Sands Casino Keyword Analysis

As a result of text mining customer reviews on Marina Bay Sands Casino, the total number of extracted words was 61,977. Among them, Table 1 shows the words with more than 40 occurrences. 'Casino' was the most common word, followed by

'passport', 'game', 'table', 'floor' and 'drink'. The keywords were found mostly in reviews concerning the need to present foreign passport when entering the casino, various game types, uncomfortable tables, and free drinks. In addition, keywords such as 'experience' and 'service' were found in positive reviews such as comments on having a pleasant experience, a stylish and impressive atmosphere, friendly service from the accessible staffs, and casual dress code. On the other hand, negative keywords were extracts such as 'cigarette', 'smoking', 'atmosphere', 'table' and 'betting' from reviews concerning smoking, cigarette smoke, odor and dust inside the casino, uncomfortable tables, and high initial betting amount.

Table 1. List of Extracted Keywords from Reviews on Marina Bay Sands (with occurrence of minimum 40)

Keyword	Frequency	(%)	Keyword	Frequency	(%)
Casino	1124	18.1	Tourist	68	1.1
Passport	405	6.5	Charge	67	1.1
Game	293	4.7	Gambling	64	1.0
Table	260	4.2	Smoke	61	1.0
Floor	256	4.1	Day	60	1.0
Drink	253	4.1	Security	58	0.9
Machine	234	3.8	Hour	56	0.9
Time	217	3.5	Bet	55	0.9
Place	212	3.4	Night	55	0.9
Slot	160	2.6	Shopping	54	0.9
People	150	2.4	Hotel	53	0.9
Money	141	2.3	Country	52	0.8
Smoking	139	2.2	Fee	51	0.8
Fun	129	2.1	World	51	0.8
Foreigner	122	2.0	Check	49	0.8
Atmosphere	101	1.6	Restaurant	47	0.8
Lot	95	1.5	Thing	46	0.7
Entrance	90	1.4	Cigarette	44	0.7
Roulette	84	1.4	Tea	44	0.7
Coffee	83	1.3	Gambler	43	0.7
Experience	81	1.3	Poker	43	0.7
Water	81	1.3	Dealer	41	0.7
Admission	76	1.2	Alcohol	40	0.6
Area	74	1.2	Service	40	0.6
Card	69	1.1	Amount	40	0.6

Source: Created by the author based on analysis result

1.2. Resorts World Sentosa Casino Keyword Analysis

As a result of text mining customer reviews on Resort World Sentosa Casino,

the total number of extracted keywords was 30,731. This is about half the number of reviews of Marina Bay Sands Casino. Among them, Table 2 shows the words with more than 20 occurrences (the number was adjusted according to the differences of number of reviews). 'Casino' was the most common, followed by 'game', 'passport', 'place', 'table', 'time' and 'drink'. Like in the case of Marina Bay Sands Casino, reviews included comments on foreigners not being allowed to enter without a passport, and positive appraisals such as being a 'grand casino' and comments on free drinks were also found. In addition, there were many positive reviews such as friendly staffs, experience worth a visit, comfortable atmosphere, separated smoking/non-smoking areas, no racism, and an atmosphere that is welcoming and accessible even for beginners as it is a casual family-style casino. On the other hand, the keywords 'atmosphere', 'staff', and 'poker' were derived as negative keywords,

Table 2. List of Extracted Keywords from Reviews Resorts World Sentosa Casino (with occurrence of minimum 20)

Keyword	Frequency	(%)	Keyword	Frequency	(%)
Casino	520	18.6	Card	33	1.2
Game	148	5.3	Poker	33	1.2
Passport	136	4.9	Hotel	32	1.1
Place	125	4.5	Experience	31	1.1
Table	110	3.9	Resort	31	1.1
Time	103	3.7	Coffee	30	1.1
Drink	91	3.2	Dollar	30	1.1
Machine	88	3.1	Player	30	1.1
People	72	2.6	Admission	29	1.0
Area	64	2.3	Restaurant	29	1.0
Money	63	2.2	Service	28	1.0
Gambling	62	2.2	Bet	27	1.0
Slot	61	2.2	Luck	27	1.0
Fun	56	2.0	Thing	26	0.9
Smoking	47	1.7	Chip	25	0.9
Foreigner	46	1.6	Night	25	0.9
Atmosphere	44	1.6	World	25	0.9
Lot	43	1.5	Fee	24	0.9
Roulette	43	1.5	Customer	23	0.8
Tourist	41	1.5	Employee	22	0.8
Charge	38	1.4	Floor	21	0.7
Staff	36	1.3	Visit	21	0.7
Day	34	1.2	Beverage	20	0.7
Food	34	1.2	Dealer	20	0.7
Hour	34	1.2	Entrance	20	0.7

Source: Created by the author based on analysis result

found in comments on facilities such as poor ventilation, small and limited smoking areas, and small and crowded floors. In addition, there were reviews about the inconvenience in communication due to employees that did not speak English, and outdated poker machines.

2. Characteristic Analysis According to the Co-occurrence Network Structure for Each IR

Co-occurrence network analysis was performed using extracted keywords to understand the data (See Fig. 3, Fig. 4). The co-occurrence network is a network that shows the relationship between words used in a text, and it depicts the relationships found in a single review (Yoshimi and Higuchi, 2011). This is a network in which words with a strong degree of co-occurrence are connected with a line. The more frequent the co-occurrence, the thicker the line, and the more frequent the word, the larger the circle. However, the distance between circles has no meaning (Matsuo and Ishibashi, 2002).

In Figure 3, at the center of the co-occurrence network (with minimum 40 appearances) is the word 'casino', which has formed networks with words such as 'fun', 'place', 'time', 'lot' and 'money'. Consequently, the casino shows the characteristics of an interesting place, and users perceive it as a place to have fun, where you can have quality experience that is not so costly.
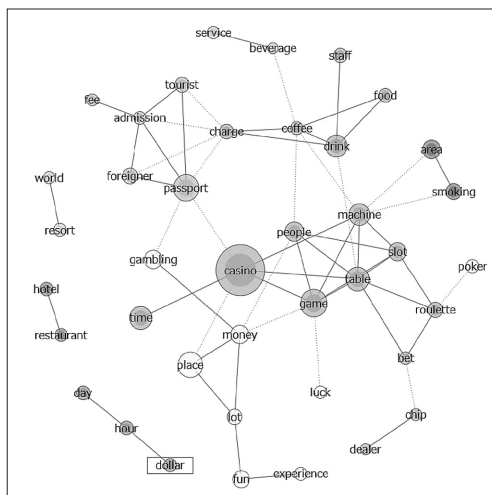
Also in Figure 4, from the co-occurrence network (with minimum 20 appear-

Figure 3. Co-occurrence Network on Marina Bay Sands
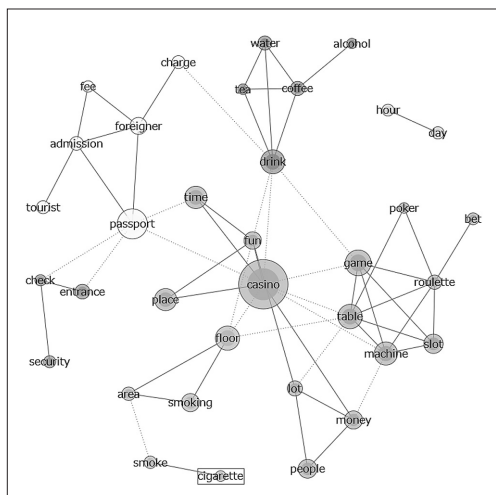
Figure 4. Co-occurrence Network on Resorts World Sentosa

Source: Created by the author based on analysis result

Source: Created by the author based on analysis result

ances), the word 'casino' is again at the center of the network, and is connected to words such as 'game', 'people', 'table', 'machine', 'slot', 'roulette', 'bet', 'lot' and 'time'. Networks of these words mainly show characteristics of casino games, and since there are many types of games that you can enjoy with a small amount of money, users perceive it as a casual casino that the general public can visit without much hesitation.

In both cases, word networks concerning mandatory passport verification for foreigners, free drinks, environmental factors such as smoking areas, and casino game types were commonly found.

Ⅴ. Conclusion

By utilizing text mining to analyze online reviews, the current study identified perception and appraisal of IR casinos of Koreans who had visited IR casinos in Singapore. In addition, the network structure between the keywords was identified. It can be seen that users mostly perceived Singaporean IR casino as a positive space, but elements of negative opinions could also be found. In both casinos, keywords such as 'passport', 'game', 'table', 'floor', 'drink', 'place' and 'time' centered around the word 'casino'.

For positive keywords, 'experience', 'service', 'employee' and 'drink' were distinguishable, which were found in reviews including comments on the casinos being enjoyable and worthwhile experience, having a stylish and comfortable atmosphere, with friendly service from the staffs and casual dress code. On the other hand, keywords associated with negative reviews such as 'cigarette', 'smoking', 'atmosphere', 'table', 'bet', 'staff', 'poker' were found in reviews concerning topics such as the amount of money, the inconvenience of communication with staffs who did not speak English, and outdated poker machines.

This study conducted an online review analysis of user perception of Singaporean IR casinos, focusing on Koreans. It is expected that the keywords of the analysis results will become valuable evaluative data, applicable to IR casino operation and management in the future. In addition, as the demand for IR establishment is gradually increasing around the world, including in Japan, it is necessary to use various data sources to form expectations. While the current study has limited its sub-

ject to appraisals of Koreans, further study is required on how the perceptions seen through online reviews are different for users of other nationalities.

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