EXPLORING THE KEY ATTRIBUTES OF LIFESTYLE HOTELS: A CONTENT ANALYSIS OF USER-CREATED CONTENT ON INSTAGRAM

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Abstract. This study aims to investigate the key attributes of lifestyle hotels by analyzing user-created content on Instagram, an image-based social network service. In an era of uncertainty in the tourism and hospitality industry, it is inevitable that hotels must create a competitive identity. However, even with the significant growth of the lifestyle hotel segment, the concept of a lifestyle hotel is still vague. Therefore, to explore how to define, perceive, and interpret lifestyle hotels and to suggest their crucial attributes, this paper examines user-created content on Instagram. The data from 20,886 Instagram posts related to lifestyle hotels, including 2,209 locations, 43,586 hashtags, and 20,866 images, were analyzed using Vision AI, a social network analysis method and computer vision technology. The results of this study demonstrated that lifestyle hotels are perceived as design-focused branded hotels that represent the urban lifestyle and share both vacation and urban activities. Furthermore, the results reflected one of the latest hospitality trends-a holiday in an urban setting in addition to the primary purpose of traveling. Finally, this research suggests broader uses of big data and deep learning for analyzing how a place is consumed in a geospatial context.

Keywords. Lifestyle Hotel; Hospitality Experiences; User-Created Content; Social Network Analysis; Vision AI.

1. Introduction

With the rising uncertainty in tourism and fiercer competition in the hospitality industry, global hotels face many challenges, and the lifestyle hotel concept has been highlighted as a differentiator. Numerous global players have developed lifestyle brands and attached enriched experiences to their spaces. Particularly, the lifestyle hospitality experience has been shaped to capture the interests of millennials, who can be difficult to attract. Lifestyle hospitality has unique design features, providing more personalized services and local ambiance. Lifestyle hotels have transformed their hotels into places where customers want to visit, not just stay, adding new value. Lifestyle hotels are like an oasis among standardized brand hotels. However, lifestyle hotels have had difficulty maintaining their uniqueness and gaining a competitive edge within the industry. With the

rapid growth of the lifestyle market, it is inevitable that lifestyle hotels would begin to standardize like branded hotels (Pizam, 2015), making it impossible to provide personalized services tailored to every individual lifestyle and preference. Therefore, it has become difficult for lifestyle hotels to differentiate themselves from other segments, such as boutique or design hotels. Since a strong identity is crucial for sustainable growth in the hospitality industry (Jones, Day, and Quadri-Felitti, 2013), the lifestyle hotel segment should rebuild and strengthen its identity to provide a clear distinction for customers. Hotel guests must be able to match the hotel's identity with its perceived image. Therefore, by focusing on user-created content on Instagram, an image-based social network service, this paper examines how guests perceive, interpret, and define lifestyle hotels. This research redefines the lifestyle hotel segment and suggests crucial attributes for future lifestyle hotels.

2. Related Works

2.1. LIFESTYLE HOTEL

Since the mid-20th century, lifestyle hotels have differentiated themselves from traditional hotels. Global hotel groups have used the term lifestyle hotel brand to describe a new type of hotel that represents individual lifestyles and captures customers' preferences. Lifestyle hotel brands have mainly targeted the Millennial generation, also known as Generation Y. Millennials tend to have spending power in tourism, as they value leisure time, want more personalized services, and are curious about new experiences (Liu et al., 2018). Also, millennials visit hotels for more diverse activities than previous generations, such as having fun, unplugging or escaping, celebrating a special arrangement, being inspired, and attending an event (Gail, 2018). Thus, to appeal to these millennials, lifestyle hotels offer unique designs, differentiated facilities, customized services, and a unique experience that is different from the traditional cookie-cutter branded hotels (Jones, Day, and Quadri-Felitti, 2013).

Nevertheless, the concept of lifestyle hotels has not been defined clearly and is often confused with that of boutique hotels or design hotels. Thus, previous studies have tried to distinguish lifestyle hotels by defining their intangible and tangible characteristics as follows: (1) small-sized properties with unique architecture and interior design, (2) smart hotel rooms offering high-tech amenities, (3) a unique and modern atmosphere, and (4) personalized services providing a sense of belonging (Freund de Klumbis, 2002; Milburn, Stotts, and Hall, 2006). Furthermore, many studies have emphasized lifestyle hotels' experiential aspects and physical characteristics, such as featuring innovative, functional, and stylish environments that evoke diverse and unique experiences for their guests (BLLA, n.d.; Jones, Day, and Quadri-Felitti, 2013; Kosar, 2014). Among their many characteristics, lifestyle hotels provide highly personalized services that appeal to individual lifestyles (Pizam, 2015). However, since lifestyle hotels adopt global franchising (Jones, Day, and Quadri-Felitti, 2013; Ricca, 2015), unlike independent small-sized boutique hotels, it is impossible for them to meet all customers' needs and desires (Pizam, 2015). Lifestyle hotels have also become

standardized (Schmidt, 2017), losing their primary essential feature of uniqueness.

2.2. INSTAGRAM AND USER-CREATED CONTENTS

Instagram is one of the most popular photo-sharing social network services (SNS), along with Facebook and Twitter (ZDnet, 2018). Instagram provides users with a variety of information and image-based experiences (Rainie, Brenner, and Purcell, 2012). An Instagram post includes creator-related features (ID, profile), contextual features (date/time, location) and content features (image, hashtag, caption, comment). Instagram data shows traces of users' experiences and activities in the place, as it can tag the location information for a particular place. The collected data reflect individual actions, perceptions, and interactions, representing urban social behavior (Guerrero et al., 2016). Likewise, Instagram data helps in understanding user behaviors from a social, cultural, and environmental perspective (Hu, Manikonda, and Kambhampati, 2014).

Photos that users post on image-based social media represent the individual's collected interests at a given moment, reflecting their activities, perceptions, and interactions (Silva et al., 2013). Furthermore, user-created content on Instagram not only indicates users' perceptions of a place but also affects other users' future behaviors (Bahtar, 2016). Since images may convey more than a thousand words, analyzing many images can be difficult. However, deep learning-based computer vision technology provides an opportunity to identify image content automatically. With the help of this technology, Hu (2014) analyzed a large number of Instagram images for the first time and classified them into eight categories: Friends, Food, Gadget, Captured Photo, Pet, Activity, and Selfie & Fashion. Jaakonmäki (2017) also analyzed the visual features of Instagram images by utilizing machine learning-based Clarifai's API. Thus, this study adopted a deep-learning approach for analyzing Instagram image content.

3. Materials and methods

To explore users' perceptions of the latest lifestyle hotels, this research was based on a quantitative approach adopting mixed methods. Focusing on user-created content related to lifestyle hotels on Instagram, this research analyzed both content and contextual features. The proposed methods are illustrated in Figure 1.
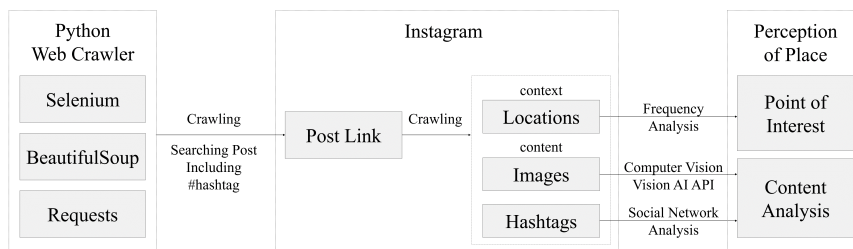

Figure 1. Research methods.

3.1. DATA COLLECTION AND INCLUSION CRITERIA

This research investigates the utilization of user-created content on Instagram for understanding the perceived image of lifestyle hotels and extracting key attributes. Instagram posts that included the lifestyle hotel hashtag were collected since hashtags created by the image creator represent an important description for audiences (Giannoulakis and Tsapatsoulis, 2016). Specifically, this research developed a web crawler with Python that used Selenium, BeautifulSoup, and Requests libraries. As illustrated in Figure 2, a post consists of user ID, location, images (or videos), captions (including hashtags), comments, and date of creation. Instagram posts can be searched with a specific hashtag (#), location, or user ID, showing the most recent results first. The geographical scope of this study is the city of Seoul, where many lifestyle hotels are currently in development but still have ambiguous identities. Thus, all Instagram posts available at the time of the search that contained lifestyle hotel hashtags (both in English and Korean) were included in the dataset. The Python web crawler collected Instagram post links first. The collected data were preprocessed by eliminating redundant post links. Then, from the post links, four types of data were gathered: date, location, image, and hashtag. Among the extracted hashtags, keywords that solely meant the word hotel, for example 'hotels,' were excluded. The data collection took place twice during October 2020.
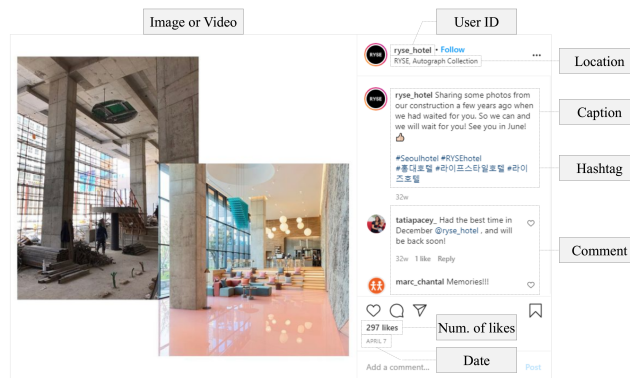

Figure 2. Structure of an Instagram post.

3.2. DATA ANALYSIS

To analyze the data's contextual features, this study conducted a frequency analysis on location. Specific locations and points of interest (POI) were mapped, indicating where people perceived and visited a lifestyle hotel. Spatial analysis was conducted based on Seoul's urban planning system (The Seoul Institute, 2017). Then, the content features-images-were analyzed using computer vision technology. To deal with huge images, this study adopted Google Vision AI, an optimized computer vision API for analyzing image content. The deep learning-based image recognition technology enabled understanding what images

were without the help of many additional researchers. The technology recognized objects expressed in images and classified them automatically, assigning several labels, the keyword that illustrates the image content, and probabilistic scores for each image. After analyzing image data with Vision AI, the research examined crucial labels based on the total count of each label multiplied by the predicted scores. After that, the labels were classified based on five categories defined by previous research on photograph-based hospitality (Pullman and Robson, 2007) and atmospheric dimensions (Baker,1986; Baker, Grewal, and Parasuraman, 1994; Berman and Evans, 1995; Turley and Milliman, 2000). Furthermore, as studies on social networks help understand the diverse relationships between societies (Scott, 2000), this study conducted social network analysis (SNA) on hashtags. The top 100 frequent hashtags were analyzed based on statistics and the SNA metrics framework provided by Gephi, a network analysis and visualization tool. Focusing on eigenvector centrality, which indicates the level of importance of a node within a network, this study explored the crucial keywords and visualized the results (Grandjean, 2015). Finally, based on the obtained results, a semantic analysis was conducted on how Instagram users perceive lifestyle hotels. This study redefines the concept of lifestyle hotels by comparing the traditional definition with reality and suggesting key attributes for lifestyle hotels.

4. Findings and Discussion

4.1. BASIC STATISTICS OF DATASET

In total, this research collected 20,886 posts. The posts were created during the period between February 2015 and October 2020. Table 1 shows the basic statistics of the dataset.

Table 1. Statistical summary of Instagram dataset.

Data	N
Locations (Total)	2,209
Images (Total)	20,866
Hashtags (Total)	43,586
Hashtags per post (Mean)	18

4.2. LOCATION ANALYSIS

This study specified highly ranked locations as POI through a frequency analysis that examined 20,886 lifestyle hotel posts. A total of 2,209 locations were retrieved from the dataset (i.e., among a total of 20,886 posts, 13,587 posts tagged location). As a result of analyzing the location data, the most popular locations in Seoul are shown in Table 2. The most visited locations tagged with 'lifestyle hotel' in Seoul were mostly branded hotels (Hotel Cappuccino, L7, RYSE, PATIO7, and GLAD). Among the five cases, four hotels were in the city's center. Therefore, most lifestyle hotel posts were created in a certain branded hotel within downtown Seoul. This result supports the perspectives of previous studies that defined

lifestyle hotels as franchised branded hotels. Additionally, the findings showed that many people perceived hotels located in the city center as lifestyle hotels, not hotels in tourist attractions or destinations far from the city.

Table 2. Frequency analysis of location.

No.	Location Name	Regions	Type	Freq.	%*
1	Hotel Cappuccino	City Centers	Branded	1,816	82.2
2	L7 Hotel	City Centers	Branded	181	8.2
3	RYSE, Autograph Collection	Metropolitan Centers	Branded	62	2.8
4	PATIO7 Hotel	City Centers	Independent	37	1.7
5	GLAD Hotel	City Centers	Branded	26	1.2

* Total number of locations = 2,209. Percentage = frequency of location divided by total number of locations.

4.3. IMAGE ANALYSIS

Table 3 shows the results of a content analysis of the 20,886 lifestyle hotel-related post images. On average, nine labels were assigned to one image. The results show that the key attributes of lifestyle hotel images created by their guests were architecture and interior design. The most prominent labels were *Room* (29.52%) and *Interior Design* (23.77%), reflecting the core experience of a hotel-staying inside the room. Additionally, general interior features appeared frequently (e.g., *Wall*, *Floor*, *Ceiling*), composing almost 67% of images. FF&E in indoor spaces, including *Furniture* (22.2%), *Table* (9.98%), *Bed* (6.16%), and *Lighting* (5.22%), was crucial in lifestyle hotel images. Furthermore, labels related to architecture, such as *Building* (18.92%), *Architecture* (16.82%), and *Property* (16.25%), were also shown in many cases.

Following this, nature (e.g., *Sky*, *Tree*, *Plant*, *Water*) and food (e.g., *Cuisine*, *Dish*, *Ingredient*) emerged frequently. Furthermore, lifestyle hotel images contained *City* (4.28%) and *Urban Area* (3.55%), as well as *Vacation* (4.49%) and *Leisure* (3.90%). This result represents the emerging trend in the travel and tourism industry of people spending their vacation in an urban hotel (i.e., hocance: hotel+vacance). Additionally, certain colors (particularly yellow and blue) appeared frequently, which can be due to the brand identity colors of lifestyle hotel brands, such as the yellow of L7 and the blue of the Hotel Cappuccino.

In summary, regarding lifestyle hotels, people posted an overwhelming number of spatial images showing the general interior, FF&E, and architecture design, particularly for the guests' rooms. Aligning with previous studies that highlighted unique architecture and interior design, this research found that architecture and interior attributes represented a large portion of lifestyle hotel images. Furthermore, vacation activities related to nature, food, and the urban landscape also seem to be crucial visual attributes in lifestyle hotels. However, in-room high-tech was not seen in this research, although it had been one of the main characteristics of lifestyle hotels in previous studies.

Table 3. Top 40 labels of Instagram images.

Category	Attributes	Labels	Rank	%*
Design	Facilities	Room	1	29.52
		Living room	26	5.02
		Bedroom	19	6.13
	General Interior	Interior design	2	23.77
		House	8	10.55
		Wall	10	8.89
		Floor	14	6.76
		Ceiling	17	6.48
		Home	20	5.40
		Design	28	4.62
	FF&E	Furniture	3	22.22
		Table	9	9.98
		Bed	18	6.16
		Lighting	22	5.22
		Bed sheet	38	3.54
	Architecture	Building	4	18.92
		Architecture	5	16.82
		Property	6	16.25
		Real estate	24	5.18
Setting	Activities	Vacation	30	4.49
		Leisure	35	3.90
	Landscape	City	32	4.28
		Urban area	37	3.55
	Nature	Sky	7	11.99
		Tree	12	7.28
		Plant	21	5.28
		Water	31	4.28
Service	Food/Drink	Food	11	8.49
		Cuisine	15	6.71
		Dish	16	6.60
		Ingredient	27	4.97
		Drink	33	4.15
		Meal	36	3.75
		Brunch	40	3.13
Others	Captioned Photo	Font	13	7.23
		Text	23	5.19
	Etc.	Photography	25	5.02
		Yellow	29	4.53
		Blue	34	4.08
		White	39	3.53

* Percentage was calculated by dividing frequency of label total number of images

4.4. HASHTAG ANALYSIS

A total of 43,586 hashtags were collected along with the lifestyle hotel posts. Based on social network analysis, the average clustering coefficient was 0.81, indicating a densely connected network (Latapy, 2008). The following categories were found: hotel concepts, architecture & interior design, vacation & travel, facilities, hospitality & lifestyle trends, and hotel brands & regions. Through measuring eigenvector centrality, key hashtags were investigated (Figure 3).
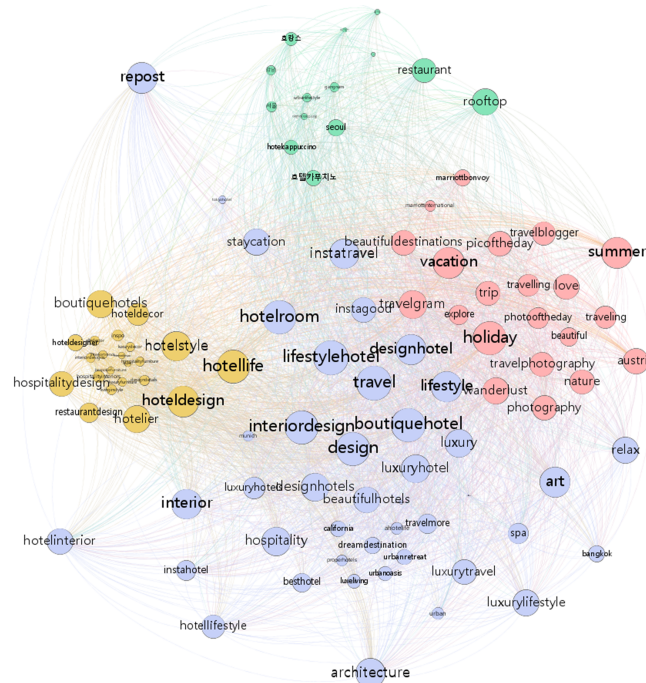
Figure 3. Visualization of hashtag analysis.

In terms of hotel concept, *boutique hotel* and *design hotel* had a higher eigenvector centrality, measuring 0.981 and 0.900, respectively. People perceive lifestyle hotels as similar to boutique hotels and design hotels. Following this, some of the most outstanding hashtags involved hospitality interior and architecture, such as *design* (0.970), *interior design* (0.966), *hotel design* (0.919), *interior* (0.896), and *architecture* (0.874). Thus, the guests highlighted the hotels' architecture and interior design the most. Additionally, general travel and vacation keywords also seemed to be important, for example *travel* (1), *holiday* (0.972), *vacation* (0.921), *instatravel* (0.882), and *travelgram* (0857). For facilities, *hotel room* (0.981), *rooftop* (0.811), and *restaurant* (0.756) emerged.

Unlike conventional travel keywords, lifestyle hotel posts have hashtags describing urban experiences, such as *urban retreat* (0.568), *urban oasis* (0.535), and *urban lifestyle* (0.410). Some hashtags reflect the new hospitality trend of spending vacations in a hotel, such as *hotel life* (0.954), *staycation* (0.812), and *hotel lifestyle* (0.743). In addition, even showing relatively weak centrality, the city of *Seoul* (0.589) and the specific hotel brand *Hotel Cappuccino* (0.536) emerged. Thus, the hashtags collected from lifestyle hotel posts reflect not only general hospitality and tourism-related attributes but also new trends in the hospitality industry, such as spending vacation time in an urban area or enjoying leisure activities nearby. This result supports previous studies that argued that lifestyle hotels appeal to specific lifestyles reflecting the latest trends.

5. Conclusion

In an era of significant change, this study investigated customers' perceptions of lifestyle hotels and extracted key attributes by analyzing up-to-date user-created content on social media. Within this research, it is evident that there were similarities and differences between the perception of lifestyle hotels by their guests and the concept of lifestyle hotels organized through the hospitality literature. The findings indicated that people perceive lifestyle hotels as downtown branded hotels with unique architecture and interior design features that provide urban experiences. This result supports the previously defined concept of lifestyle hotels as featuring unique and modern characteristics and design-centric interior architecture with stylish FF&E. However, previous literature highlighted personalized services and high-tech touches in guestrooms, yet those kinds of attributes did not show noticeably in this research. Instead, the findings demonstrated that guests perceive lifestyle hotels as places to enjoy urban and trendy experiences. Therefore, for the sustainable growth of the lifestyle segment, lifestyle hotels should rebuild their identity as hotels with distinctive architecture and design where urban experiences and the latest hospitality trends are situated.

Lifestyle hotel brands must continuously ask how and in what ways their environments and experiences should be designed. Therefore, while hospitality experiences and perceptions of a place have been studied qualitatively, this study finally utilized a big data approach to understand the perceptions of places. However, much deeper validation is still needed because the studied images were analyzed only to determine their contents without considering stylistic issues. In the face of rapid market changes, this approach with deep learning can provide an opportunity for hospitality brands to rebuild their competitive and sustainable identities in spatial contexts.

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