

Over Tourism Classification for Sightseeing Areas in Japan

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Abstract

Tourism is considered the important factor for the subjective wellbeing and QOL (Quality of Life) due to generate the feeling of satisfaction and wellbeing. First experimented natural and cultural environment generate for tourists to the positive view of life. In addition, tourism development generates economic growth increasing foreign exchange income and creating employment opportunities. The rapid development of tourism, however, has caused the conflict called “over tourism” between tourists and residents. These conflicts involve the inconvenience for residents and damage of cultural environment conducted by the tourists and are caused by the cultural differences. This phenomenon has occurred tourist sites/places for sightseeing and has increased every year due to the rise of tourists. The aim of this research is to define the state of “over tourism” on tourist sites with famous place of sightseeing and classify the level of state of over tourism based on the tweets data. In Japan, Kyoto has turned to the condition of over tourism. We conduct the comparison four famous places of sightseen compared to Kyoto and define the state of over tourism based on positive and negative expressions. In addition, results show that the key categorized words, such as local area name, could the important role of positive expression.

Keywords: Over tourism, Sightseeing area, Positive expression, Local area, Tweet

1. Introduction

Tourism studies began to focus on wellbeing through a broad range of terms partially inspired by philosophy as well as psychology, such as ‘quality of life’ and ‘life satisfaction’. That is, tourists’ experiences and activities tend to contribute to positive effect in a variety of life domains such as family life, social life, leisure life, cultural life, among others. The research of Uysal et al. (Uysal et al., 2016) resulted that tourism experiences and activities have a significant effect on both tourists’ overall life satisfaction and wellbeing of residents. In addition, Tourism is part of human existence, and it is the opening and extension of a life system. Tourism changes our lives in a unique way; it not only improves our living standard but also adds to our wellbeing (Tuo et al., 2014).

Tourism as an industry has become a major socioeconomic force in both developing and developed markets. Its potency as a source of economic development has made it essential to the strategic planning efforts in nearly every country in the world. There are few industries that transverse the entire globe bringing together many cultures (Uysal et al., 2016). Today, the development of tourism business generated the general consensus which has emerged that it

not only increases foreign exchange income, but also creates employment opportunities, stimulates the growth of the tourism industry and by virtue of this, triggers overall economic growth (Lee & Chang, 2008). In each country, the development of tourism industry directly effects the economic growth. These phenomena appear in many countries. In Spain, the economic growth has been sensible to persistent expansion of international tourism during the last three decades (Balaguer & Cantavella-Jordá, 2002). In 2018, the Japan Tourism Agency announced that GDP of tourism in 2016 was estimated to be about 10.5 trillion yen in the 2018 white paper. Tourism GDP is a summary of the added value of tourism-related industries such as accommodation and retail for foreign visitors to Japan, an increase of 2 trillion yen compared to 4 years ago. It accounts for about 4.5% of Japan's nominal GDP growth during this period and plays an important role in economic growth. The background of this increase comes from the new tourism trends such as internet websites and low-cost tourism using Low Cost Carrier (LCC), generating a new environment of interactions between tourism and the residents.

The increase of tourists generates the new interactions called “over tourism” between tourism and the residents. Due to these increase of tourists, a feeling of rejection towards tourists has emerged over the past few years in famous sightseen areas. ‘Over tourism’ can be defined as “the impact of tourism on a destination, or parts thereof, that excessively influences perceived quality of life of citizens and/or quality of visitors experiences in a negative way” in United Nations World Tourism Organization (UNWTO) (UNWTO, 2019). In recent years, demonstrations opposing the development of tourism have been occurred in famous tourist destinations such as Barcelona and Venice. In Japan as well, crowded tourists have rushed into the bus station in front of Kyoto JR station causing difficulty to ride on the commuter bus for businessman or students. These impacts generate the new conflict between tourists and residents.

Our previous research proposed the Feeling Expansion Model showing that the feeling expands space and time axis focusing on the specific expression with positive words involving keywords “tourist”(Lee, 2019). In addition, we enhanced the concept of the Feeling Expansion Model in relation to the conflict between tourists and residents. As the results, the positive actions with the “collaborative” keywords could be the solution for the conflict between tourists and residents and enhance the QOL (Quality of Life) (Lee, 2020). In this research, we will analyse the communication both residents and tourists in several famous sightseeing sites in Japan and classify the state of “over tourism”. We assume that each famous sightseeing site has features and if it’s site will be more popular than now then the state of “over tourism” will be changed and assume that the changing element will be the important element for both residents and tourists. If we could extract positive elements, then these elements conduct the positive effect for residents and tourist enhancing subjective wellbeing.

2. Over Tourism

Since the outburst of over tourism as a global issue over the summer 2017 (Seraphin et al., 2018), over tourism has caused the difficulty to enjoy for residents in their own places because of traffic jams, degradation of landscapes, congestion and vandalism. Gathering a large number of people/tourists at a destination always leave behind pollution, littering and other negative effects that destroy the amenity and freshness of a place. The places occurring over tourism not

only the famous historical sightseeing places but also green national parks. Different sightseeing places has the different features. The feeling of rejection towards tourist in Barcelona and surroundings appeared to the form of assaults to restaurants, businesses and yachts; attacks on tourist buses, bikes damaged in tourist spots, and other acts of vandalism (Martin et al., 2018). Venice is one of the famous regional spotlights facing the issue of over tourism. In Venice, ecology, economics and culture are inextricably linked to the conflict between human and natural capital (Seraphin et al., 2018).

On the other hand, the approach to solve the over tourism has adopted several frameworks. Seraphina et al., researched to show over tourism from locals' perspective and showed that residents as volatile groups have proven to be resilient in some case (Seraphin et al., 2018) . This resilience has been developed through an ambidextrous approach, which is the balance between exploitation (using a negative situation) and exploration (turning it into something positive). The paper identified four archetypes of locals in regard to their attitudes towards tourists in an over tourism context: victims, peaceful activists, vandals, and resilient locals. Zmyslony et al., presented the research contributing to the discussion on the sustainability of the sharing economy by adopting the Social Capital Theory to expand explanations of the sharing economy's role and scope of relations with local communities in the context of over tourism (Zmyslony et al., 2020). This paper aims to examine the sustainability of the process of the sharing economy impacting urban tourism communities in light of Robert Putnam's approach to Social Capital Theory.

Kyoto is famous for places suffering from phenomenon of over tourism in Japan. Already in Kyoto, the number of hotel constructions has increased due to the increase in tourists, and the phenomenon of underground soaring has already appeared. On the other hand, it cannot be said that the situation reached the stage of over tourism in other sightseeing places of Japan. With the development of the tourism industry in the future, there is a possibility that similar over tourism will occur in other areas of Japan. In this study, we will evaluate how over tourism situation is coming in typical tourist destinations in Japan.

In this research, as an extension of our previous research such as Feeling Expansion Model (Lee, 2019), we will consider extraction of the essential problem of over tourism problem from the emotional expression in social media. At the stage of over tourism, negative expressions are often originated from the residents, so they are from the perspective of the residents. On the other hand, positive expressions are often viewed from residents and tourists, so they will be examined from the perspectives of both residents and tourists. Our research is originally based on the viewpoint of the positive or negative expression in terms of tourism including over tourism.

3. Our Proposed Approach

3.1 Perspective

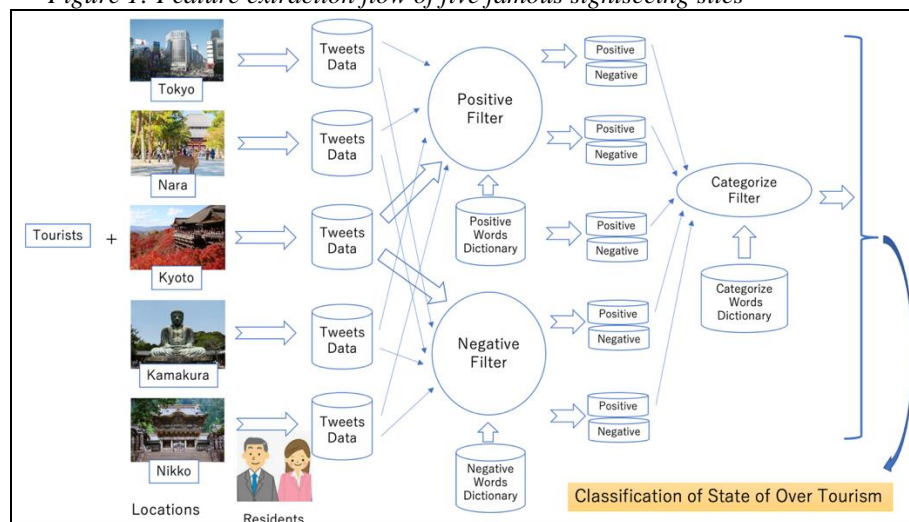
In this research, we consider that emotional expressions by social media expressed including individual happiness and analyse the contents using natural language analysis. In particular, our aim is to extract positive and negative expressions and analyse the emotional expressions of tourists and residents in detail. The focus of this research is to extract indicators of whether a particular region is transitioning to over tourism. In Japan, Kyoto has fallen into

an over tourism situation, so each situation of other sightseeing area is identified by comparing features with the emotional expression to Kyoto. The target areas are Tokyo, Nara, Kamakura, and Nikko. These four areas are tourist destination points with a cultural heritage that has attractive attention in the history of Japan. In particular, the characteristic elements bringing happiness are extracted from positive expressions.

3.2 Dataset and Processing Overview

We setup to the extracting system using Twitter REST API interface to collect sentences by Python program language. Figure 1 shows the overview of the data flow map of the experiments. We extracted unique data to eliminate multiple posts and eliminated commercial data. Then we applied the syntax analysis using Japanese dictionary and extracted related co-occurrence noun or adjective keywords for each category. Our experiments extract the tweets with the two co-occurred keywords. One keyword is “tourists” and the other keyword is the name of the sightseeing sites such as Kyoto, Tokyo, Nara, Kamakura, and Nikko. We firstly setup the Positive and Negative filter using Positive and Negative Dictionary including 100 keywords and extracted positive and negative tweets for each sightseeing sites. In this selecting term, from January 8th to April 18th in 2020, a lot of people has been infected the corona virus, but the stage of infection was not in the pandemic in Japan. In this experiment, keywords relating to the Covid-19 are removed from the Negative Dataset. After the extraction of positive and negative dataset, we conducted to categorize the filter using words dictionary.

Figure 1: Feature extraction flow of five famous sightseeing sites



4. Results of Experiments

4.1 Features of each Sightseeing Site

We conducted the experiments based on the co-occurrence with “tourist” and the name of the sightseeing sites such as Kyoto, Tokyo, Nara, Kamakura, and Nikko from January 8th to April 18th in 2020 with the total 17880 tweets. Table 1 shows the total number of tweets, the number of positive tweets and the number of negative tweets for five different sightseeing sites.

The number of positive and negative tweets counts the number of tweets that contain one or more words in the positive and negative dictionary respectively. In addition, we consider the multiple appearances in each tweet. Total number of Positive or Negative keywords means the total appearances in all tweets. The results in Table 1 have three features. Firstly, the size of the city corresponds to the total number of tweets. Secondly, almost half of all tweets contain emotional, such as positive or negative, expressions. Thirdly, positive keywords have double appearance more than negative keywords over all tweets in every sites.

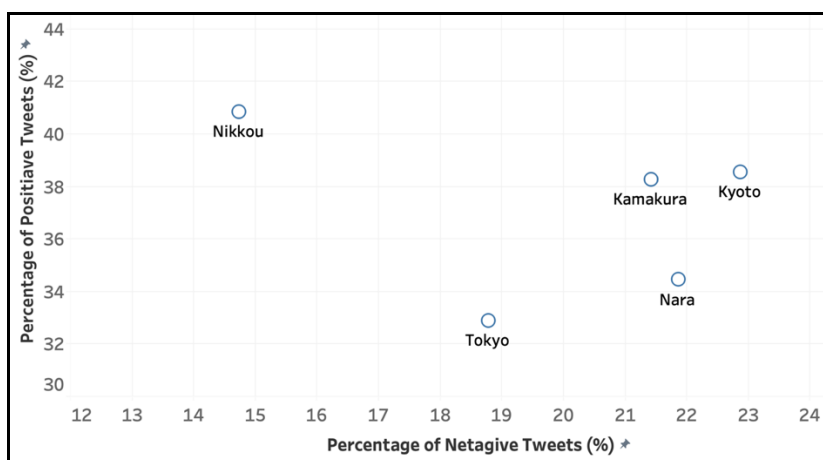
Table 1: Frequency of Tweets for Five famous Sightseeing Sites

	Kyoto	Nara	Kamakura	Tokyo	Nikkou
Total Number of Tweets	4503	3663	3636	4313	1765
The Number of Positive Tweets	1736	1262	1392	1419	721
Total Number of Positive Keywords	2504	1804	2098	1979	1103
The Number of Negative Tweets	1030	801	779	810	260
Total Number of Negative Keywords	1315	956	992	1029	306

Figure 2 shows the distribution of percentages of positive and negative tweets of each five sightseeing sites. Due to the inclusion of the keyword “Tourism”, positive tweets are about twice as frequent as negative tweets. In addition, the results have four following characteristics. 1) Kyoto and Kamakura can be considered to be in almost the same over tourism state. 2) If the percentage of Negative tweets is 20% or more, it can be considered that the situation is over tourism. 3) Nikko has many positive expressions suitable for tourist destinations. However, if Nikko has the convenience transportation system, then it would be close to over tourism state. 4) If the size of city is large such as Tokyo, the proportions of Positive and Negative tweets tend to decrease.

However, the following two points are not clear. 1) The difference between characters of Kyoto and Kamakura is not clear. 2) Nara has few positive expressions compared to Kyoto and Kamakura, which are under over tourism state.

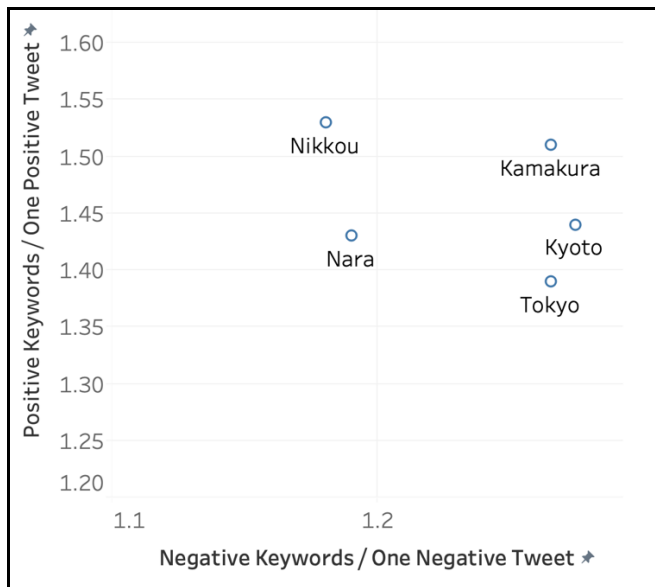
Figure 2: Distribution of Percentages of Positive and Negative Tweets



4.2 Features of Typical Sites of Over Tourism

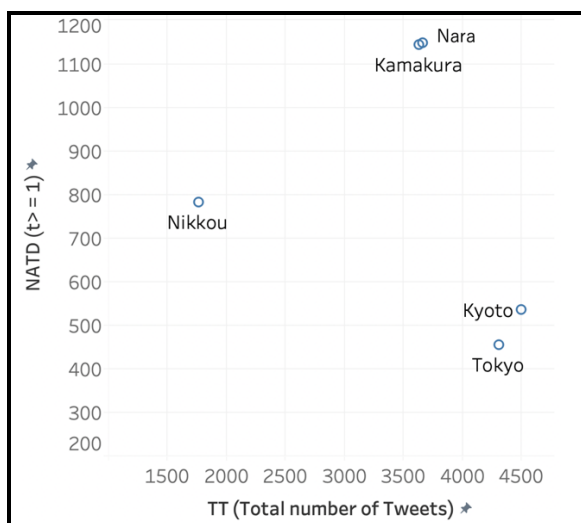
To solve the question mentioned before, Figure 3 shows the number of negative and positive keywords in one Negative and Positive Tweet. In this research, we assume that the inclusion of many negative and positive expressions in one tweet represents feelings with stronger negative and positive feelings. It can be realized that Kyoto expresses stronger negative emotions than Nara, and Kamakura expresses stronger positive emotions than Kyoto in Figure 3.

Figure 3: Distribution of Positive and Negative Keywords per One Positive and Negative Tweet



4.3 Features of Strength of Adjacent Tourist Destination

Figure 4: Features of Strength of Adjacent Tourist Destination of Sightseeing Places



Assuming that the reference of sightseeing places has the meaning full expression of tourist for remembering tourism activities, 20 famous attractive names of sightseeing places are

selected to form each dictionary in five different places. We conducted to collect data whether or not each tweet has the word contained in each dictionary in Figure 4.

The horizontal axis of Figure 4 is TT (Total number of Tweets), which indicates the number of all tweets, and the vertical axis is NATD (t) (The number of tweets including Names of Adjacent Tourist Destination with t times). NATD ($t > 1$) indicates the number of tweets that names of adjacent tourist destination appeared more than once. The larger this value of NATD is considered that the more references to the tourist spots in the area meaning there are the more attractive tourist spots in this area. From the results in Figure 4, Kamakura are more attractive places than Kyoto. It could be considered that the expansion of the development potential for tourism within the area is emerging.

5. Conclusion

The aim of this research to define the state of “over tourism” on tourist sites with famous places of sightseeing and classify the level of state of over tourism based on the tweets data. In Japan, Kyoto has turned to the condition of over tourism. We conducted the evaluation to four famous places of sightseen, such as Nara, Kamakura, Tokyo and Nikkou, compared to Kyoto and defined the state of over tourism based on positive and negative expressions.

As a result of the experiment, it could be possible to classify five tourist destinations by extracting the following characteristics. 1) Kyoto and Kamakura can be considered to be in almost the same over tourism state. 2) If the percentage of Negative tweets is 20% or more, it can be considered that the situation is over tourism. 3) Nikko has many positive expressions suitable for tourist destinations. However, if Nikko has the convenience transportation system, then it would be close to over tourism state. 4) If the size of city is large such as Tokyo, the proportions of Positive and Negative tweets tend to decrease. 5) Kyoto expresses stronger negative emotions than Nara, and that Kamakura expresses stronger positive emotions than Kyoto. 6) Kamakura are more attractive places than Kyoto. In this experiment, the effect of Covid-19 has been removed because the term of this research was a time when Covid-19 was not yet widespread in Japan. However, the Covid-19 has spread the worldwide in the middle of 2020 and caused a pandemic. Currently, limited movement has hit the tourism industry worldwide. Borders have been closed, air travel has stopped, and hotels, restaurants and attractions have been closed. In the process of reducing the influence of Covid-19, local residents will tend to refuse to visit tourist from areas with high Covid-19 infection. This negative feeling is different from over tourism and this feeling could be regarded as a conflict between residents and tourists. In the future, I would like to continue tourism research on activities that support sustainable tourism on these issues.

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