

## EXTRACTION OF POSITIVE ACTIONS FOR OVER TOURISM

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**ABSTRACT.** *Leisure tourism generates the feeling of satisfaction for quality of life and wellbeing especially subjective wellbeing. The tourism has become the big industry for each country and new tourism policy has been developed by each government. The large increase of tourists, however, caused the conflicts between tourists and residents called “over tourism”. This phenomenon has increased at the famous places of sightseeing in the world. Each problem caused by over tourism could be considered to be settled by political and economic policy governed by local government and nation. It is not clear whether these tactics could resolve the problems of over tourism and establish the reliable relationship between tourists and residents or not. Our previous research built the feeling expansion model and showed positive feelings could explain the new proposal for the relation between tourists and residents. In this research, we focused on that collaborative actions could create good human relation between two types of people with different positions. The analyzing system was conducted for one month to extract positive actions from tweets data. As the results, some collaborative actions could be merged to the new positive action for tourists and residents.*

**Keywords:** Positive action, Collaboration, Resident, Tourist, Over tourism, 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’. The research of Uysal et al. resulted that tourism experiences and activities have a significant effect on both tourists’ overall life satisfaction and wellbeing of residents. That is, tourists’ experiences and tourism 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 [1]. 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. Despite these increasing data for tourists, a feeling of rejection towards tourism has emerged over the past few years in some tourist 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) [2]. In recent years, demonstrations opposing the development of tourism have 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 conflict between tourists and residents.

The action of tourism is motivated by the interest for the real fact with the long history, such as the historically famous architecture and grand nature. The existences of these resources are important not only for tourists but for residents in the meaning of collaborative relationship. In this research, we focus on the collaborative relationship to find the solution for the conflict between tourists and residents such as over tourism. Service-Dominant Logic (SDL) paradigm [3,4] theorizes the joint role of organizations and customers in the value co-creation process. We assume that residents, tourists and positive collaborative actions play a role of companies, customers and services respectively. The services are provided by the residents for tourists to enhance the collaborative relationship. The tourism is evaluated by the tourists in terms of the collaborative positive actions. Our previous research proposed the feeling expansion model showing that the feeling expands space and time axis focusing on the specific expression using twitter data extracted by the multiple rules [5]. In addition, we extended 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) [6].

In this research, firstly we will analyze the structure in terms of collaborative keywords and classify these keywords into categories showing the type of collaboration. Secondly, tweets data are extracted as the viewpoint of residents with collaborative keywords. We analyze the structure of sentence and compare the original structure of sentence. Finally, multiple structure of word and tweet data will be combined into the new sentence structure. This type of sentence will be shown to example of the solution of over tourism problem.

**2. Tourism and Co-Creation.** In the service industries, such as tourism and hospitality, the value of co-creation activities is interested and is evaluated as the sound activity. Busser and Shulga [7] researched a lack of a valid and reliable instrument that measures value from the co-created perspective. They applied the Service-Dominant Logic (SDL) and Theory of Value (TOV) and described that co-created value is conceptualized as a personal appraisal of the meaningfulness of a service based on what is contributed and what is realized through collaboration. The results of multidimensional analysis represent that co-create value includes meaningfulness, contribution, collaboration, recognition and emotional response. SDL paradigm [8,9] theorizes the joint role of organizations and customers in the value co-creation process. Grounded in SDL, Cabiddu et al. [10] examined how IT enables value co-creation in tourism and why some players appear to appropriate the value co-created in the partnership more successfully compared to others.

Our research focused on the positive action with co-creation process and assumed the co-creation process could present one example of the solution of the conflict between tourists and residents called over tourism. We assume the enterprise in SDL play a role of residents or organizations of resident and customer in SDL play a role of tourists. In addition, service would be provided by residents to tourists. Our research will evaluate that the service with co-creation activities with tourists and residents creates the new reliable relation between tourists and residents.

### 3. Our Proposed Approach.

**3.1. Dataset.** We used tweets data using Twitter REST API interface to collect sentences, written by JSON format and conducted several times a day. Tweets data are limited for restricted users who easily send the personal comment but have the following merits. 1) Tweets data has the obedient opinions. 2) Positive and/or negative opinions

existed. In a small timescale, if the negative opinions share the main current, these opinions are realistic state of obedient opinions. 3) Positive and impressive opinions exist in tweets data. 4) In the system, tweets data is the one directional message, but a lot of interactive tweets exist.

**3.2. Service-dominant logic.** SDL paradigm [8,9] theorizes the joint role of organizations and customers in the value co-creation process. In tourism industry, the service will be provided residents and/or the community of residents to tourists. Both of tourists and residents create new value in the co-creation process. The place of co-creation process is the visiting place for tourists. The co-creation activities will contribute to generating comfortable emotional feelings. In the previous research [6], positive and negative expressions are extracted from the tweets data co-occurred with two keywords “tourists” and “residents”, and then over tourism is analyzed. In particular, the core activities are extracted from positive expressions by heuristic methods. From the research, it was extracted that “collaborative” activities bring happiness to “tourists” and “residents”. This research applies the concept of SDL to analyzing “co-creative” activity, and specifically examines the relationship between each 10 keyword and actions extracted from multiple categories. In [6], only the framework of “collaborative” activities could be extracted, but in this research, characteristics of those keywords are also extracted. We classified “Mutual Activity” into four categories in Figure 1 using two concepts, action and feeling.

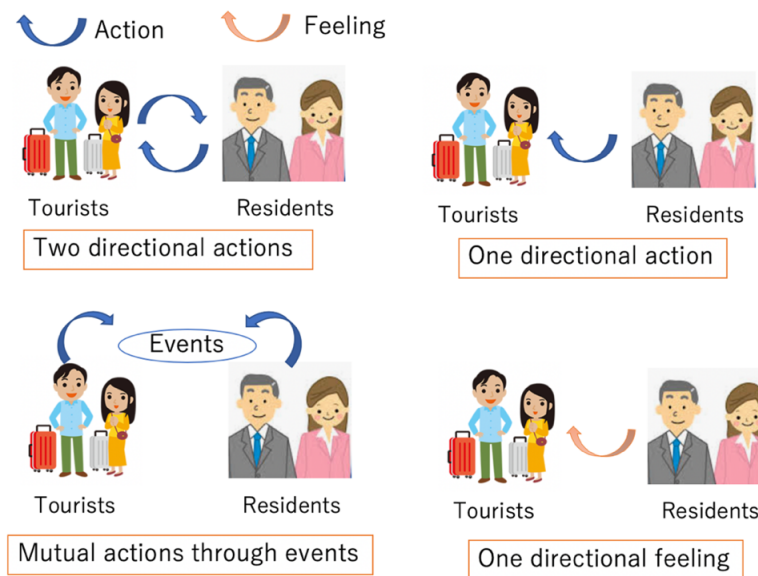


FIGURE 1. Four categories of mutual actions between tourists and residents

Three types of category are based on the “action” and one category is based on “feeling” with the direction. The service is normally provided as an action from residents to tourists through the co-creative activity. In addition, the co-creative activity requires mutual actions for each other. In this research, we categorized keywords related to actions generating positive emotions based on “co-creation” activities. Regarding the classification of categories, we first classified whether it was a direct action between residents and tourists or an indirect action through other objects. Next, from the direct action, we classified it into two categories, “two directional actions” and “one directional action”, depending on whether it is bidirectional or unidirectional. Indirect actions between residents and tourists are classified into two categories, “mutual actions through events” and “one directional feeling”, depending on whether they are actions through concrete real-life events or emotional actions. The category of “two directional actions” includes keywords with

two directional action both residents and tourists. The category of “one directional action” includes keywords with one directional action from residents to tourists. Keywords in the category of “mutual actions through events” has the meaning to join some active movement such as events. The category of “one directional feeling” includes keywords with co-creative feeling from residents to tourists.

**3.3. Classified categories of co-creative keywords.** In this research, we considered two types that can cause positive emotions based on “co-creative” activities. One is a word that leads to direct action, and the other is a word that causes positive emotions through other related objects. For these two types, we considered two categories from different forms and finally set a total of four categories. In this study, we first selected one word for each of the four categories: “Collaboration”, “Cooperation”, “Participation” and “Sympathy”. Second, we chose a word to complement each word, referring to the dictionary that describes the word. Since the object should be discovered in this research, we added words only to the categories related to action, and as a result, we selected 10 keywords. Each category has the representative keywords shown in Table 1.

TABLE 1. Category of keywords in terms of “Mutual Activity”

Categories	Related Keywords
Two directional actions	Collaboration, Exchange, Everybody, Together
One directional action	Cooperation, Volunteer, Action, Support
Mutual actions through events	Participation
One directional feeling	Sympathy

Each keyword originally has the following meaning. 1) “Collaboration” is to make or use two or more people together. 2) “Exchange” is based on the premise that people with different cultures and values and things come and go, and emotions are included in the “exchange”. 3) “Everybody” is all of people. 4) “Together” is the action to unite into one. 5) “Cooperation” is to make an effort and work toward the purpose. 6) “Volunteer” is to contribute to people and society based on voluntary will. 7) “Action” is active movement. 8) “Support” is to help people and groups in trouble with strength of purpose. 9) “Participation” is to be part of a purposeful gathering or to act together. 10) “Sympathy” is the feeling that others’ opinions and feelings are correct.

**3.4. Experimental setup.** We set up the extracting system written by Python program language. Figure 2 shows the overview of the data flow map of the experiments. Since some Tweets data is automatically posted repeatedly, we created a filter to remove duplicates and processed it to remove duplicates at the first stage. In addition, data that does not include natural language, such as data with only symbols, is also deleted. Morphological analysis is performed by natural language analysis using Mecab, and nouns, verbs, adjectives, and adverbs are extracted as part of speech. Our experiments extract the tweets with the two co-occurred keywords. One keyword is “tourists” and the other keyword is one of keywords in Table 1. The meaning of existence of “tourists” is that these tweets are issued by residents not tourists. In this research, we created several different dictionaries, and extracted the characteristics according to the presence or absence of words in the dictionary and the frequency of appearance in one Tweet. Extracted data are analyzed as the following steps. 1) Figure 2 shows the positive and negative dictionaries including 100 keywords that correspond to the emotions of the residents. 2) In addition, features are classified using dictionaries that include words such as famous place names, sightseeing spots and tourist spots close to those places. A dictionary containing city names, a dictionary containing political and policy words, a dictionary of words related to food, etc. are constructed, and the characteristics of Tweet are extracted based

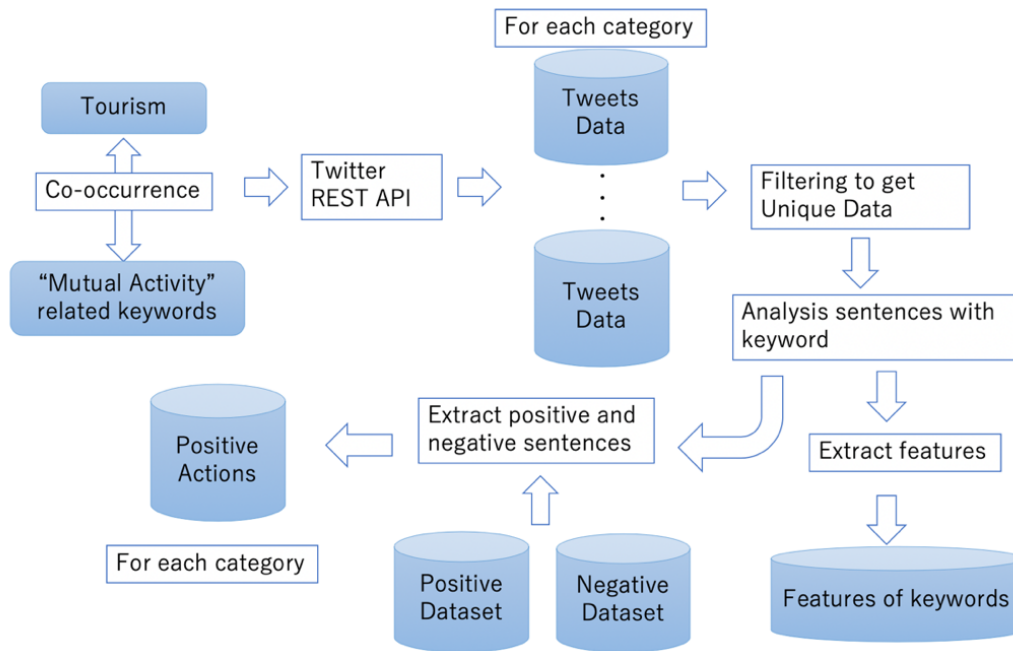


FIGURE 2. Overview of experiment environment

on these dictionaries. In this selecting term, huge people are infected the corona virus. There are lots of tweets in all over the category. In this experiment, keywords relating to the corona virus are removed from the Negative Dataset. Finally, active actions will be organized.

#### 4. Results of Experiments.

4.1. **Features of co-creative keywords.** We conducted the experiments based on the co-occurrence with “tourists” and “Mutual Activity” related ten keywords from January 8th to April 18th in 2020 with the total 10862 tweets.

Table 2 and Table 3 show the frequency and ratio relating positive and negative keywords respectively. In each table, positive or negative tweets mean that these tweets include positive or negative keywords more than once. As the results of experiments, each keyword is classified in to the following three types.

##### 1) Positive keywords are dominant

**“Exchange”**: The majority of the data including “tourism” and “exchange” tweeted about specific international exchange activities that transcend national boundaries. In particular, there were many cases where different types of “people” interacted each other. It can be thought of as one word representing the concept of “co-creation”.

**“Together”**: Basically, the subjects of “Together” with multiple objects are a group of “people”. As other objects, “food” (eating multiple ingredients together), “nature” (same scenery), and sightseeing items are collected together and recognized as the same. Since it does not create or express a new action or activity, it does not include the concept of “co-creation”.

**“Volunteer”**: It is the recognition as “people + activities” and combined into one word, such as “information volunteers”, “volunteer guides” and “language volunteers”. The subject is an active person, and its activity consists of one person with one direction. There is no concept of “co-creation” in meaning.

**“Participation”**: There are many comments from tourists. The contents include events such as “inbound training”, “tours”, “Olympics”, “tourism attraction activities” and “lives”. Each expression reveals to create an activity together meaning to a concept of “co-creation”.

TABLE 2. Frequency and ratio relating positive keywords

	Collaboration	Exchange	Everybody	Together	Cooperation	Volunteer	Action	Support	Participation	Sympathy	Total
TT	226	520	3561	2032	661	309	1245	1113	1102	93	10862
PT	52	183	1239	720	179	96	369	288	343	37	3506
PTR	23	35.2	34.8	35.4	27.1	31.1	29.6	25.9	31.1	39.8	32.3
TPK	63	257	1697	943	228	147	460	355	440	62	4652
TPK/PT	1.21	1.4	1.37	1.31	1.27	1.53	1.25	1.23	1.28	1.68	1.33

TT: Total Tweets, PT: Positive Tweets, PTR: Positive Tweets Rate =  $PT/TT$  (%), TPK: Total Positive Keywords,  
 TPK/PT: Total Positive Keywords/Positive Tweets

TABLE 3. Frequency and ratio relating negative keywords

	Collaboration	Exchange	Everybody	Together	Cooperation	Volunteer	Action	Support	Participation	Sympathy	Total
TT	226	520	3561	2032	661	309	1245	1113	1102	93	10862
NT	54	141	1209	515	235	83	468	438	285	33	3461
NTR	23.9	27.1	34	25.3	35.6	26.9	37.6	39.4	25.9	35.5	31.9
TNK	70	187	1614	697	306	103	659	570	358	63	4652
TNK/NT	1.3	1.33	1.33	1.35	1.3	1.24	1.41	1.3	1.26	1.91	1.34

TT: Total Tweets, NT: Negative Tweets, NTR: Negative Tweets Rate =  $NT/TT$  (%), TNK: Total Negative Keywords,  
 TNK/NT: Total Negative Keywords/Negative Tweets

## 2) Negative keywords are dominant

**“Cooperation”**: In most used case it is used as a noun. In particular, it is often included in political and policy statements, and in that case, a lot of negative contents exist.

**“Action”**: It is often expressed as a combination word that is combined with other words, such as “fund collection activity”, “circle activity”, “inviting activity”, “band activity”, “craft activity”, and “commercial activity”. In particular, it is often included in political and discriminative statements with a lot of racist and negative contents.

**“Support”**: It is also used as a noun such as “support for the country”, “support companies”, “reconstruction support”, and “relief supplies”. In general, the target of support is often “a person who has a difficult situation” leading to the negative comments, and there are few semantic contacts as tourism.

## 3) Both positive and negative keywords are not dominant

**“Collaboration”**: Although this keyword is related to the tourism industry, it is basically used by several organizations for “joint” activities, and there are few emotional expressions and positive expressions.

**“Everybody”**: The target of “everyone” is mostly “people”, and only means to group for multiple people. There is no point of view that something is created by the involvement of multiple “people” called co-creation.

**“Sympathy”**: It seems that “sympathy” is used in collaborative feeling for other humans. In tweets, “sympathy” is often used by general public and expressed negative feeling for political matter with racial discrimination. It is far from the original meaning of “co-creation”.

As the results of analysis of meaning for each keyword, we will focus on the two keywords, “exchange” and “participation”. These keywords generate positive feeling and could introduce the activity with “co-creation”.

**4.2. New positive actions.** The limited word size in Tweets could not describe the new proposal. Therefore, in this research, we consider generating a new positive action from multiple Tweets. Since the words that have the possibility of forming a “co-creative” concept are “exchange” and “participation”, their structures are analyzed. “Exchange” means to interexchange for people, things, and societies with different values, and at that time, a place for exchange is necessary. In some Tweets, “guest house”, “hotel”, etc. are expressed as a place for concrete interaction. On the other hand, “participation” means gathering at an event with some purpose and acting together. Events such as parades, dances, and sports, require a subject, a place, and a plan. It is possible to create new positive activities by connecting such different concepts with “place” and “event content”. The conceptual diagram is shown in Figure 3.

**5. Conclusions.** In this research, we focused on the conflict between tourists and residents called “over tourism”. In order to solve this problem, we considered the idea from good dominant logic to service dominant logic discussed in the service field and introduced to the tourism field. Based on the idea of “co-creation”, which is an important concept in SDL, we attempted a quantitative evaluation. Firstly, we categorized the relationships related to “co-creation” and extracted the representative keywords. Secondly, we extracted Tweets that had a co-occurrence between the keywords and “tourists”, and analyzed the frequency and ratio based on the positive and negative dictionary. Thirdly, we extracted the two keywords “exchange” and “participation” including the positive expressions and the concept of “co-creation”. Finally, positive activities were created based on two keywords related to co-creation by tourists and residents. These positive actions could have the concept of “co-creation”. These results could contribute to proposing a solution for the conflict condition and to overcoming the negative feeling of over tourism.

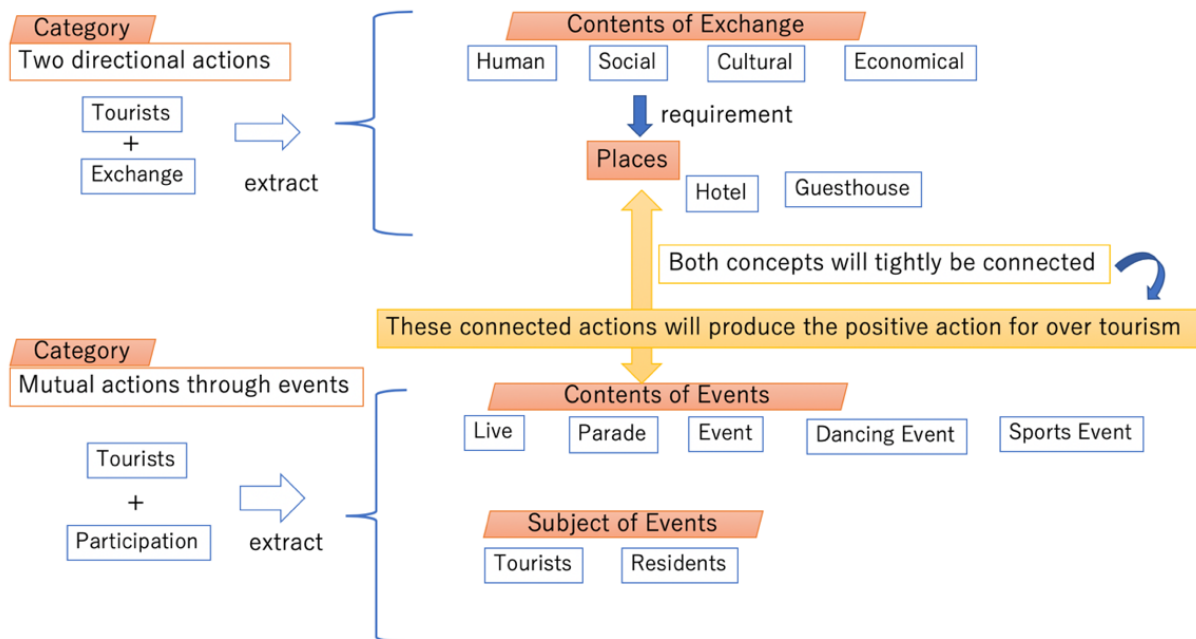


FIGURE 3. Positive action of different keywords set

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