

POSITIVE ACTIONS AS FORMS OF RESILIENCE FOR TOURISM DURING COVID-19

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ABSTRACT. *Although tourism activities could contribute to the improvement of subjective well-being and quality of life, the COVID-19 pandemic has caused significant economic damage to the tourism industry via the suspension of economic activity and the restriction of people's movement. However, these restrictions have resulted in activities that could be recognized as forms of resilience. It makes sense to extract from the tweets what characterizes a specific resilience activity. This study analyzed positive expressions as forms of resilience in tourism-related tweets during COVID-19 and proposed three levels of positive actions: the individual, co-creative, and society levels. Focusing on the co-creative level, we collected data using four keywords pertaining to co-creative actions in the tourism industry from January 2020 to June 2022. Consequently, we analyzed 68,844 unique tweets and found that multiple words meaning "support" were expressed more during the time when movement was restricted due to COVID-19 and the percentage of appearances of these keywords sometimes exceeded 5% in all tweets. Positive tweets comprise almost 35% in all tweets; these keywords exceeded 15% in positive tweets. By analyzing the contents expressing forms of resilience in detail, we evaluate the form of resilience in tourism activities.*

Keywords: Positive actions, Tourism, Resilience, Tweets, Natural language analysis

1. Introduction. Tourism activities allow visitors to directly experience different cultures, enjoy nature, and learn about the history and former cultures by visiting famous heritage sites. These activities contribute to the improvement of subjective well-being (SWB) and quality of life (QOL). Previous research showed that different types of tourism activities result in different types of happiness. Gilbert and Abdullah stated that vacation or traveling can significantly improve tourists' SWB and life satisfaction [1]. Stebbins indicated that serious leisure activity would bring about self-realization, self-improvement, and a sense of accomplishment, all of which are permanent and continuous [2]. Uysal et al. focused on two major demographics – residents of host communities and tourists – and demonstrated that tourism experiences and activities have a significant effect on both the overall life satisfaction of tourists and the well-being of residents [3]. World Travel & Tourism Council (WTTC) produces reports on the economic and employment impact of travel and tourism in 185 countries/economies and 25 geographic/economic regions in the world. Their annual research prior to the COVID-19 pandemic showed that the travel and tourism sector contributed 10.3% to the global gross domestic product (GDP) in 2019 [4].

The outbreak of COVID-19 first began in Wuhan, China, in 2019 and spread globally in 2020. This was followed by the emergence of several COVID-19 variants in 2021 and 2022. COVID-19 has caused large economic damage to the tourism industry due to the suspension of economic activity for extended periods and the restriction of people's movement. Previous epidemics, such as those caused by severe acute respiratory syndrome

(SARS) and middle east respiratory syndrome (MERS), had also damaged the tourism industry. Zeng et al. assessed the impact of these crises and disasters on China's tourism industry [5]. SARS and MERS, however, had limited spread in certain areas. The impact of COVID-19 on the tourism industry was found to be less severe than that of SARS and MERS. Crisis and disasters are distinguished by differences in the cause; a crisis is caused by an internal organizational failure to act, while a disaster is an external event over which an organization has no control. COVID-19 has features of both a crisis and disaster, and it resulted in changes to both individual and social environments, requiring co-existence with the virus.

In previous studies, we applied the feeling expansion model. This model could analyze the factors of positive and negative feeling and detect the positive solution for improving SWB of both residents and tourists under over-tourism state. We found that the positive actions with the "collaborative" keywords could resolve the conflict between tourists and residents, which could then enhance the QOL of both groups. The collaboration with tourists and residents could help organize new events, such as the festival or joint events portraying Japanese culture. These collaborating joint events could generate the harmonious feelings toward each other and increase wellbeing in both tourists and residents [6]. In addition, we proposed a method for discovering positive activities in the negative environment of over-tourism. One example of the positive activities can be demonstrated by the keyword "participation". These tweet's contents include events, such as "inbound training", "tours", and "tourism attraction activities", and introduce the positive activities in tourism [7]. We anticipate that these results introduced by collaborative actions could result in positive expressions of resilience in difficult conditions, such as over-tourism and COVID-19. Additionally, we proposed the extraction method of resilience activities like bricolage to advocate tourism during the COVID-19 pandemic in 2020 [8].

The COVID-19 pandemic introduced major changes in the social environment for humanity; initially, there was no vaccine and only limited activities were permitted. As economic stagnation grew, tourism activities were restricted. Activities to improve the well-being of individuals were restricted, and the psychosocial importance of "tourism" was once again highlighted. This indicates "tourism" is important not only as an industry, but it also affects people on an individual level. It is important to verify quantitatively how statements with "tourism" as a keyword changed amidst worldwide concerns such as COVID-19.

This research focused on positive expressions of resilience in tourism-related tweets and analyzed the expressions of people on tourism before, during, and after the periods of restricted tourist activity during the COVID-19 pandemic. Compared to the previous work, in which sampling only occurred in 2020, this analysis takes place over a longer period, from January 2020 to June 2022. In addition, we expand sampling keywords to include those related to "resilience". We provide a new definition of resilience and focus on co-creative positive expressions in which one person supports another as a form of resilience. In addition, we analyze the frequency of the co-creative keywords' appearance and their relation to other keywords over 2.5 years. We finally discuss sustainable tourism and identify a new definition of living in human society in the COVID-19 era.

2. Resilience. As a response to change, resilience can be seen in the environment, people, and organizations. The structure of resilience has previously been discussed, for example, one study found that seaweed adapted after natural disasters, such as typhoons and storms on the west coast of California [9], and in another study, a town revived from floods that struck the Queen's Island region of Australia [10]. These studies modeled the process of regeneration from changes in the natural environment as resilience. As an event related to human environmental changes, stress faced during the development and growth stages of children was analyzed, and the activation of resilience against stress was discussed [11].

As an example of a special environmental change, the process of resilience involved in the return to normal daily life has been analyzed in military personnel and their families [12]. As an example of social environment change, the resilience of an organization leader, related to enhancing the adaptability and revitalization of a company and the resilience of an organization has been discussed [16]. These discussions of resilience continue, especially in social science and psychology.

The environment may change significantly due to the occurrence of major events such as COVID-19. Activities that adapt to new environments in response to changes are required. In response to social environmental changes restrict going out, social activities need to be performed to regulate daily life. In response to this, individuals need to be resilient. When such large-scale changes are imminent, many individuals may not be able to cope with the changes, often resulting in negative emotions and behaviors; however, positive emotions and behaviors also emerge.

In a previous study [8], we focused on bricolage, which is one type of resilience. Bricolage, derived from the French *bricoleur*, is described in *The Savage Mind* by French anthropologist C. Levi-Strauss [13]. In the book, he positions himself as a “non-savage” and describes the new life of both “savage” and “nonsavage” people struggling to live within major environmental changes. Both combine various resources and utilize them in the real world. He points out the importance of paying attention to such practices. Baker and Nelson defined bricolage as a process of solving problems by “recombining resources for a new purpose” and “making ends meet” under conditions where resources are constrained only by “resources at hands” [15]. We classified bricolage actions into three types: 1) self-closed bricolage actions, 2) one-directional bricolage actions, and 3) mutual bricolage actions. As an example of maintaining daily economic activities during COVID-19, in 1), work using a virtual space that is not normally used, and in 2), provide your own spaces as a space where other people can work virtually, and in 3), share an area owned by each other as a virtual space. This study captured features of each type and illustrated the existence of bricolage during COVID-19. Keywords such as “make efforts”, “support”, and “warm up” appearing in positive tweets were extracted as keywords corresponding to the three classified bricolage actions, respectively [8]. Batat [14] showed that Michelin-starred chefs adopted social bricolage entrepreneurial thinking to cope with COVID-19. These chefs used diverse resources and multilevel response strategies to tackle the social issues caused by the pandemic, played a social role by providing aid for people who have difficulty preparing meals, and improved their collective and individual well-being while sustaining their businesses. They identified three major forms of activities implemented by the Michelin-starred chefs as response strategies: 1) philanthropic activities targeting the well-being of the community, 2) socially responsible business practices to support the food service actors, and 3) initiatives centered on consumers’ well-being concerning food.

This research classifies activities into three levels of positive activities as resilience based on the direction of communication shown in Figure 1: the individual level, the co-creative level, which is generated from mutual relationships between individuals, and the society level, which is realized in society. At the individual level, people perform activities to overcome a crisis using their own latent wisdom to solve problems. These activities are regarded as bricolage.

This study focuses on the co-creative level, rather than individual behavior. We anticipate that it is possible to build trust by creating a cooperative and co-creative relationship as a form of resilience. Therefore, keywords of co-creative activities were sampled in this study.

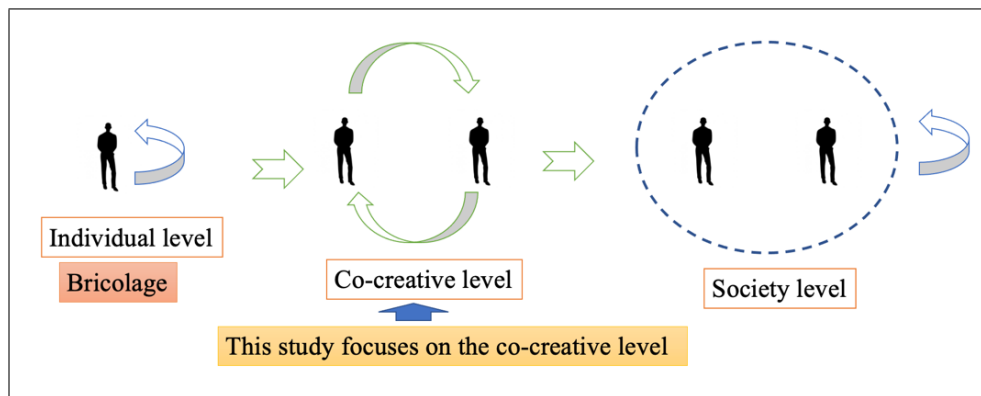


FIGURE 1. Proposed classification of resilience

3. Methodology.

3.1. Experimental design. In this study, we focus on positive actions regarding tourism and compare them to COVID-19 infection and fatality rates during the period from January 2020 to June 2022. In total, we extracted 68844 Japanese tweets including the keyword “tourism” (観光), during this period. “観光” is an element of many phrases in Japanese, such as “tourists” (観光客), “tourist trips” (観光旅行), “tourist destinations” (観光地), and “tourism activities” (観光活動), meaning that one keyword in Japanese provides a base of multiple meanings. This study will consider it as one English word: tourism.

As the experimental environment, we collected data from tweets using Twitter REST API with the keyword “tourism” as the original dataset and filtered the original data to create a unique dataset to delete multiple uploaded tweets. We applied natural language analysis using the Scopus database in Japanese and extracted the morpheme set. Finally, we extracted co-creative actions and 5-gram analysis. This experiment assumed that resilience actions have typical verbs or nouns related to capability or problem solving. We gathered 100 positive keywords representing positive feelings by multiple researchers and filtered original tweets. The set of filtered tweets is called “positive tweets”.

3.2. Experimental data. Figure 2 shows changes in the number of COVID-19 infections and fatalities in Japan between January 2020 and June 2022. However, the death toll statistics started on May 9, 2020. The number of fatalities increased slightly behind the wave of infections.

Due to frequent outbreaks of the novel coronavirus variants, six waves of infection surges occurred in Japan between January 2020 and June 2022. A state of emergency was declared four times to curb its spread. Figure 2 also includes the timing of the state of emergency declarations in Tokyo, the first from April 7 to May 25, 2020, the second from January 8 to March 21, 2021, the third from April 25 to June 20, 2021, and the fourth from July 12 to September 30, 2021. Social activities and leaving the home were restricted during these periods. This study focused on tweets during the period of the state of emergency, assuming that restricted social activities caused more stress on the individuals.

4. Results.

4.1. Features of total tweets. Figure 3 shows the number of all tweets and positive tweets from January 2020 to June 2022. Considering the lack of source tweets, we compared them using the percentage of all tweets as an index in later analyses. Tweets occurred about 1,000 to 3,000 times per month and gradually increased due to the fading impact of COVID-19. Comparing this total number with the total number of positive

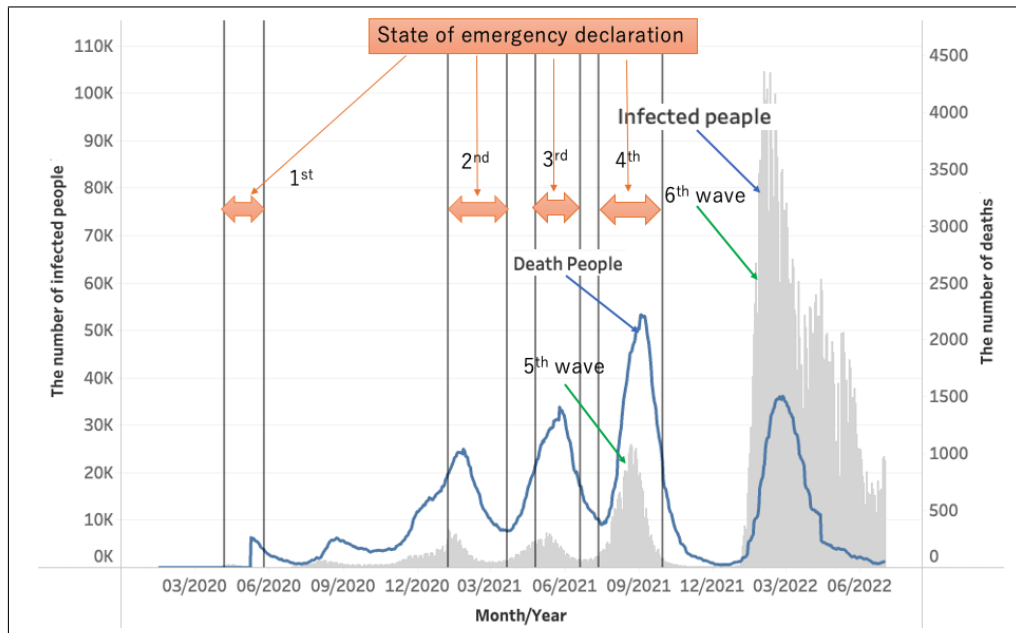


FIGURE 2. Number of infections and fatalities from COVID-19 between January 2020 and June 2022

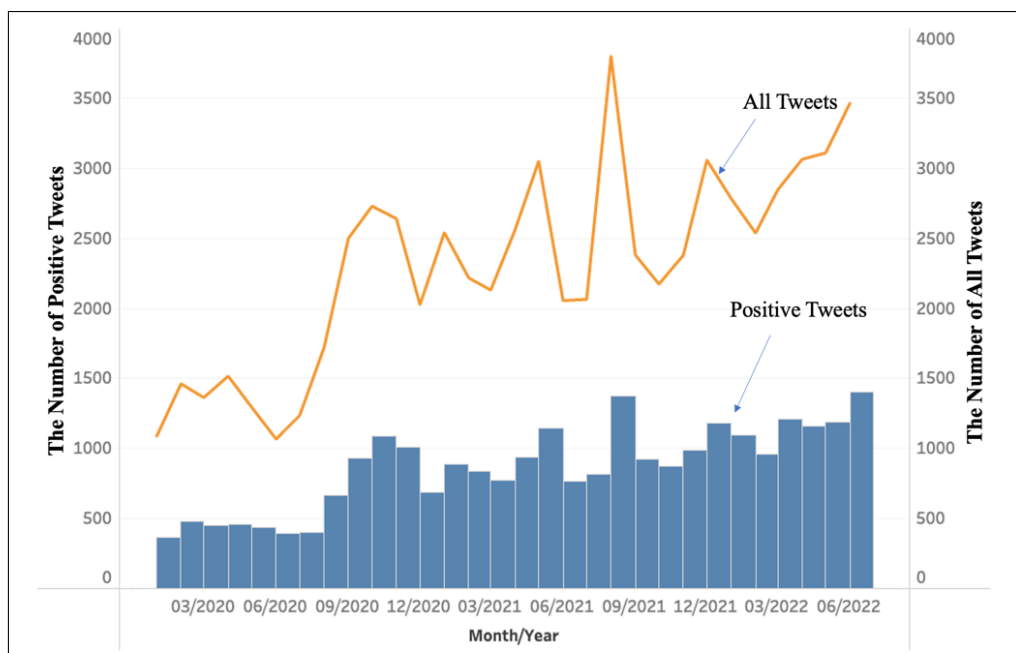


FIGURE 3. The number of all tweets and positive tweets

tweets, positive tweets have been trending between 30% and 40%; the trend has sustained.

4.2. Features of co-creative tweets. In this experiment, we classified co-creative actions as a form of resilience into three keywords: “encourage” (応援 and 盛り上げる), “recommend” (おすすめ), and “support” (支援). In each tweet, hiragana and katakana were used; in these cases, they were treated as having the same meaning. We measured the percentage of these keywords in all tweets.

Figure 4 shows the frequency of each co-creative keyword. These co-creative keywords accounted for 6% to 8% of all tweets during COVID-19. Daily activities were severely restricted during 2020, in the first period of the COVID-19 pandemic. Even in this situation,

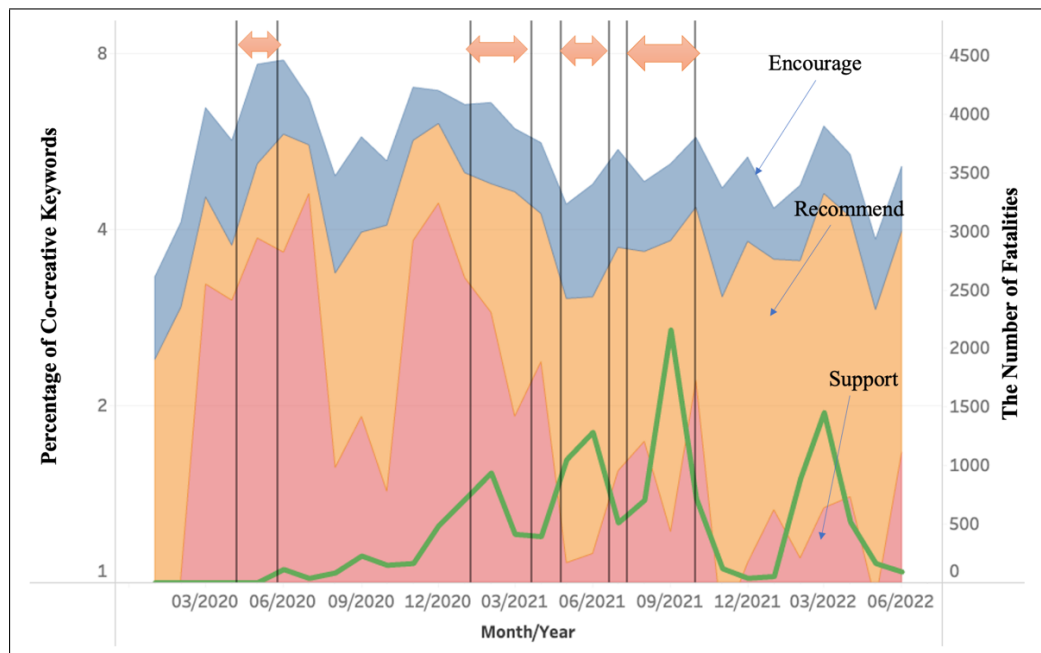


FIGURE 4. Frequency of co-creative keywords in relation to COVID-19 infections and fatalities

the fact that “recommend” and “support” appeared at a certain rate can be evaluated as having resilience. Multiple words meaning “support” were expressed more during the time when movement was restricted due to COVID-19, sometimes exceeding 4%. These words refer to the act of helping others in trouble during the pandemic and signify resilience to solve problems collectively. The green line in Figure 4 shows the total number of COVID-19 fatalities linked to restrictions on economic activity. An increase in the number of deaths necessarily leads to a decrease in the appearance of co-creative keywords; however, in some cases, an increase in co-creative keywords occurred. The temporary decrease in the percentage of “support” from August to October in 2020 coincided with the end of the peak of infections/fatalities and the state of emergency in July 2020. The end of other emergency declarations also led to a decrease in the percentage of “support”.

Figure 5 shows the results of a 5-gram analysis centered on “support” and “recommendation”. These words are shown in Figure 5, before and after “support” and “recommendation”, respectively. From the left, words with a high frequency of occurrence among words appearing near the “support” and “recommendation” keywords are shown. Concerning “support”, the most closely related were “tourism”, “business”, “travel”, and “ticket”. This indicates that the target of individual support is expanding to the entire tourism industry. The next most closely related keywords are “government”, “business industry”, and “campaign”, which may indicate a commitment to support national policies. Moreover, “infection” and “COVID-19” are also closely related to “support”. It can be said that feelings of individual support amidst the coronavirus crisis emerged. In this way, the “support” that individuals promoted spread widely from a social point of view, centering on “tourism”. It includes feelings for individuals acting as social subjects related to other people, and that can be regarded as a co-creative expression. For “recommendation”, the most closely related keywords were “tourism”, “spot”, and “place”. The next closely related keywords are famous tourist destinations, indicating that individuals recommend many tourist destinations to others. The third most strongly associated words for “Recommendation” are “Caffe” and “Gourmet”. In tourist destinations, eating as a tourist activity leaves a great impression, which appears to be an expression of recommending that food item to other people. This data shows that individuals are impressed by tourist destinations.

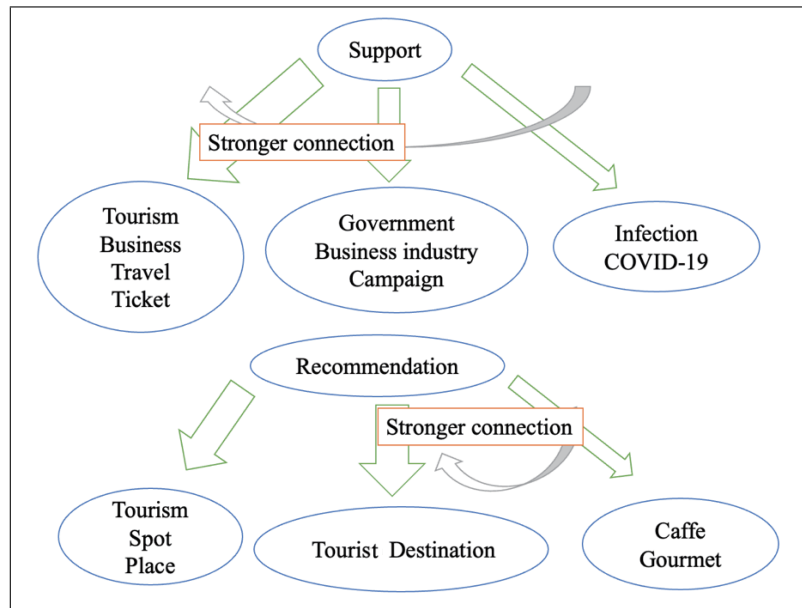


FIGURE 5. Keywords closely related to co-creative keywords

5. Conclusions. This study focused on positive expressions as forms of resilience in tourism-related tweets and analyzed messages about tourism before, during, and after periods of restrictions during COVID-19. We considered and classified three levels of positive activities related to resilience and focused on the co-creative level. We extracted three types of co-creative tweets related to “tourism”: “encourage”, “recommend”, and “support”. Natural language analysis was performed on these data to extract co-creative actions and n-gram analysis was performed, focusing on the distinctive words.

Through the analysis, we found the following results. First, the percentage of co-creative keywords accounted for 6% to 8% of all tweets during COVID-19. This indicates that many individuals expressed resilience in response to the COVID-19 pandemic, and we believe that this may be applicable to other major crises such as natural disasters. Second, multiple words meaning “support” were expressed more during the periods in which movement was restricted due to COVID-19 and the percentage of appearances of these keywords sometimes exceeded 5%. Through 5-gram analysis centered on “support”, we noted that the target of individual support is expanding to include the entire tourism industry. In addition, analysis of “recommendation” revealed that individuals recommend many tourist destinations to others.

The results of this quantitative analysis show that humans are resilient to severe environmental changes such as COVID-19. It turned out that people were actively involved in voluntary activities called bricolage to overcome the harsh environmental change. Therefore, from an individual’s perspective, bricolage-like activities may lead to new lifestyles without being bound by normal means, even in the face of environmental changes such as COVID-19. Furthermore, because many co-creative keywords such as “support” are included in individual remarks, it implies that cooperative relationships with others are important. In sustainable tourism, not only the tourists’ individual satisfaction, but also cooperative relationships with residents are important.

In future studies, we will conduct the topic analysis using latent semantic indexing, latent Dirichlet allocation, and dynamic topic modeling, and extract the typical features of sustainable tourism.

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