

A study of consciousness factors influencing tourists to sightsee in stricken areas

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Abstract

In March 2011, a large earthquake and tsunami damaged Eastern Japan. Especially, there was severe damage in the Tohoku area (especially, the Iwate, Miyagi, and Fukushima prefectures). In the Tohoku area, there are many tourist spots (e.g., Matsushima, Sendai, and Aizuwakamatsu). Since the earthquake and tsunami, however, the number of tourists in the Tohoku area has been declining. A reason for this situation may be a harmful rumor. This study is focused on the consciousness of tourists associated with their decisions about sightseeing in stricken areas. The purpose of this study is to suggest indicators for attracting more tourists to the Tohoku area. In this paper, inquiries of tourists for sightseeing in the Tohoku area are made using a questionnaire survey. Three main consciousness factors for sightseeing in the Tohoku area are named by applying a factor analysis to data from completed questionnaires: "Sightseeing" (factor 1), "Reconstruction" (factor 2) and "Uneasiness" (factor 3).

Keywords

consciousness factors of tourists, harmful rumor, stricken area, questionnaire survey, factor analysis

1. Introduction

In March 2011, a large earthquake and tsunami damaged Eastern Japan. This earthquake was the strongest in Japan's history. Especially, there was severe damage in the Tohoku area, including the Iwate Prefecture, Miyagi Prefecture, and Fukushima Prefecture. At Fukushima, a radioactive leak from a nuclear power plant occurred as a result of the large and destructive tsunami. In the Tohoku area, there are many tourist spots, including Matsushima, Sendai, and Aizuwakamatsu. Before the earthquake and tsunami, many tourists visited the Tohoku area year round. Since then, however, this has not been the case. As a possible reason, there may be a harmful rumor regarding the influence of the Fukushima nuclear power plant. On the other hand, tourists who have visited the Tohoku area since the earthquake and tsunami indicate that they are satisfied with their experiences. In addition, it was reported that 95 % of tourists (from a sample of 603 people) want to visit the area again [Club Tourism International Inc., 2012]. Moreover, they cite the purpose for visiting the area as to support earthquake disaster reconstruction there. The usual tourism traffic has been negatively impacted by the harmful rumor, as sightseeing industries in the stricken area are very important for the support of earthquake disaster reconstruction. In previous studies, tourist destination image has been measured by decision-making models [Okata, 2008]. Revitalization of the rural area through sightseeing activities is suggested [Fujisaki, 2012]. Additionally, reconstruction of the fishing village area as a public undertaking is recommended [Sato, 2012], [Shigemura, 2013]. Another idea is reconstruction of the rural area through landscape creations [Shinozawa, 2014].

The purpose of this study is to suggest indicators for attracting more tourists to the Tohoku area. In this paper, the

questionnaire survey about sightseeing in the stricken area is executed. From the results of the questionnaire survey, characteristics of consciousness of people visiting there are estimated by a factor analysis.

In section 2, the outline of the questionnaire survey are described. In section 3, analytical results of the survey are shown. In section 4, consciousness factors for attracting more tourists to visit the stricken area are estimated.

2. Outline for the questionnaire survey

2.1 Items in the questionnaire survey

In this paper, purpose of this questionnaire survey are to understand tourists' thoughts to visiting the stricken areas. In this questionnaire survey, the nine questions were made up. In this section, some questions are shown below. Other questions are shown in an appendix.

- Question No. 3:
"Did you visit the stricken area after an earthquake disaster?"
(1) Yes
(2) No
- Question No. 4:
"If you answered 'Yes' to question No. 3, please tell us about your visit to the stricken area."
(1) Date
(2) Place
(3) Purpose
- Question No. 8:
"How do you feel about the following 16 items? For each statement, please select a response from the options that are listed (i.e., *Strongly agree*, *Agree*, etc.)."
(1) I am afraid of the possibility of aftershocks.
(2) I want to confirm the actual situation of the stricken area for myself.
(3) I worry that tourists create trouble for people living in a

stricken area.

- (4) I can interact with people of a stricken area.
- (5) I can eat delicious local food in stricken areas.
- (6) I want to support earthquake disaster reconstruction by spending money to visit the stricken areas.
- (7) I feel anxious about the influence of the nuclear power plant.
- (8) I can experience something unique in a stricken area.
- (9) There are attractive tourist spots.
- (10) I feel uneasy about the safety of local food in stricken areas.
- (11) I want to participate in earthquake disaster reconstruction.
- (12) I can come into contact with nature and landscapes in stricken areas.
- (13) Public transport in stricken areas is not maintained.
- (14) I can spend time unhurriedly in a stricken area.
- (15) I think that more volunteer activities are needed in stricken areas.
- (16) I am afraid of visiting the stricken areas.

For each question above, choose the answer that best describes your reaction:

- (1) Strongly agree
- (2) Agree
- (3) Disagree
- (4) Strongly disagree
- (5) I think that there are differences between the stricken areas.

• Question No. 9:

“Will you want to visit the stricken area in the future? Please select one item from the following items:”

- (1) I want to visit there to go sightseeing.
- (2) I want to visit there to work as a volunteer.
- (3) If the stricken area will be restored, I will want to visit there.
- (4) I do not want to visit there.
- (5) Not sure
- (6) Other

2.2 Survey methods

In this section, the survey methods are described. The period of the questionnaire survey was from October 1 to November 20, 2012 (approximately two months). The survey was conducted by dissemination and via a web site. In this study, the primary target respondents to the questionnaire survey were undergraduate students because many volunteers are undergraduate students in Japan.

2.3 Results of questionnaire survey

In this section, results of the questionnaire survey are provided. With 204 questionnaires collected after dissemination and 108 received via the web site, the total number of questionnaires received was 312. Of these, number of valid responses was 310. Figure 1 shows the gender composition of the re-

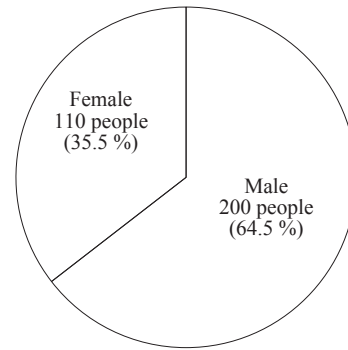


Figure 1: Sex of survey respondents

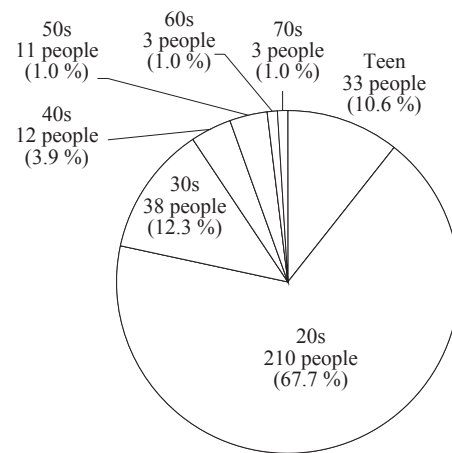


Figure 2: Age groups of survey respondents

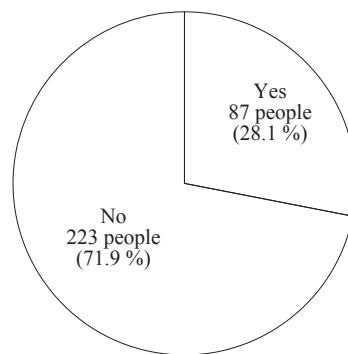


Figure 3: Experience of visiting a stricken area after the earthquake disaster

spondents (more males than females). The age composition of the sample shown in Figure 2 reveals that the majority of respondents were in their 20s. Figure 3 shows percentages of respondents who had visited a stricken area. Clearly, few people have visited the stricken areas since the earthquake disaster. The intention to visit the stricken areas in the future is shown in Figure 4. It is obvious that there are many people who want to visit the stricken areas in the future.

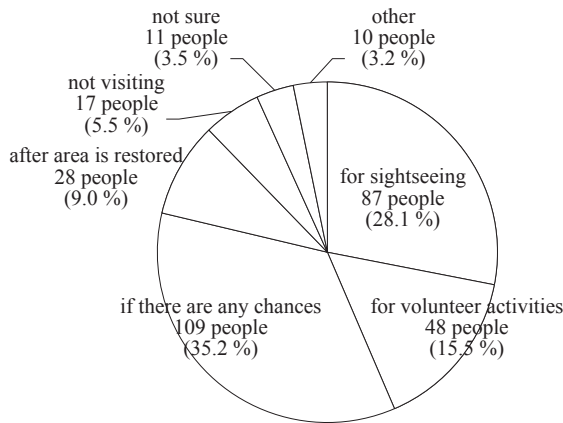


Figure 4: Consciousness regarding visits to stricken areas

3. Analytical results of questionnaire survey

In this section, the analytical results of the questionnaire survey are presented. As shown in Figure 3, 87 respondents had visited a stricken area after the earthquake disaster. Differences in experiences when visiting the stricken area were examined. The relationship between gender and the visiting experience is shown in Table 1. The percentages of males and females who have visited a stricken area is roughly equal. Visitors to the stricken areas are evaluated in terms of age in Table 2. Most age groups represented by the respondents indicated that they had not visited stricken areas after the earthquake disaster (i.e., “Not visiting” in Table 2). However, the ratio of respondents in

Table 1: Relationship between gender and the visiting experience

	Male	Female
Visiting	27.5 % (55 people)	29.1 % (32 people)
Not visiting	72.5 % (145 people)	70.9 % (78 people)

Table 2: Relationship between age groups and the visiting experience

Age groups	Visiting	Not visiting
Teens	15.2 % (5 people)	84.8 % (28 people)
20s	24.3 % (51 people)	75.7 % (159 people)
30s	65.8 % (25 people)	34.2 % (13 people)
40s	33.3 % (4 people)	66.7 % (8 people)
50s	0.0 % (0 people)	100.0 % (11 people)
60s	66.7 % (2 people)	33.3 % (1 people)
70s	0.0 % (0 people)	100.0 % (3 people)

their 30s who had visited stricken areas after the earthquake disaster was greater than those in the same age group who had not visited them. Findings from the survey indicated that the decision of respondents to visit or not visit a stricken area is influenced by the intention sightsee in a stricken area. Next, the relation between mental imaginary of answers to the stricken area and experience which answers visited the stricken area using result data of question No. 8. Figure 5 refers to questions (2), (4), (5), (6), (8), (9), (10), (11) and (12) in the questionnaire.

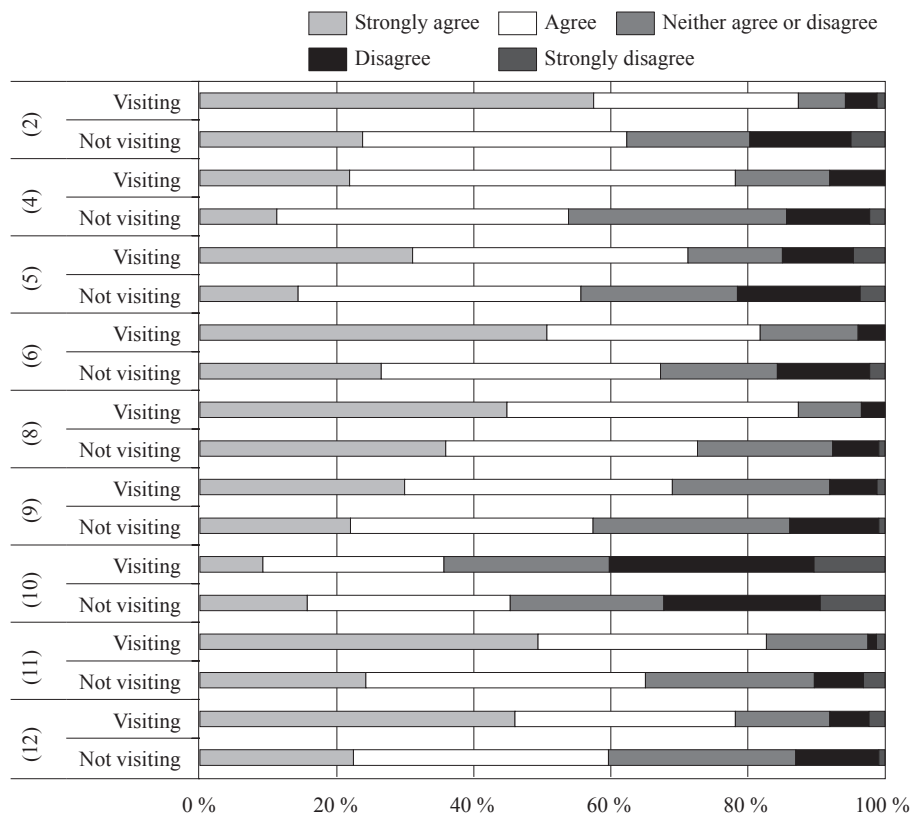


Figure 5: Mental imaginary of answers to the stricken area

Table 3: Intentions to visit stricken area in the future

Intention	Visiting	Not visiting
for sightseeing	42.5 % (37 people)	57.5 % (50 people)
for volunteer activities	29.2 % (14 people)	70.8 % (34 people)
if there are any chances	17.6 % (19 people)	83.3 % (90 people)
after area is restored	14.3 % (4 people)	85.7 % (24 people)
not visiting	5.9 % (1 people)	94.1 % (16 people)
not sure	36.4 % (4 people)	63.6 % (7 people)
others	80.0 % (8 people)	20.0 % (2 people)

Clearly, there was a considerable difference in the consciousness of respondents who had visited the stricken areas compared to those who had not. Those who had visited the areas were more likely to answer Strongly agree to the above questions compared to those who had not visited the areas. Hence, the perceptions of people changed when they observed the actual conditions of the stricken areas. The intention of respondents to visit a stricken area in the future is shown in Table 3, indicating that respondents who had visited stricken areas want to visit again in the future. It seems that many people who visit stricken areas go to support earthquake disaster reconstruction.

4. Consciousness factors for attracting tourists to stricken areas

In the previous section, it was indicated that the consciousness of people will change once they observe the actual conditions of stricken areas. Therefore, it is considered that many tourists visit the stricken areas to support earthquake disaster reconstruction. In this section, consciousness factors for attracting tourists to stricken area are estimated according to a factor analysis based on the results of question No. 8 and the 16 items therein. In section 4.1, analytical methods are described. In section 4.2, analytical results are shown. In section 4.3, consciousness factors for attracting tourists to stricken area are examined.

4.1 Analytical methods

In this section, analytical methods are described. If a respondent answered “Strongly agree” to an item, a numerical value of 5 was assigned. Likewise, a “Strongly disagree” response was assigned the value of 1. Thus, a factor analysis was performed using these assigned numerical data. Further, IBM SPSS version 21.0 was used.

4.2 Analytical results

In this section, results of the factor analysis are shown. The results obtained and scree plot based on the analysis are shown in Table 4 and Figure 6. From the results, three factors are estimated in this analysis.

4.3 Estimation of consciousness factors for attracting tourists to stricken area

In this section, consciousness factors for attracting tour-

Table 4: Results obtained by factor analysis

Factors	Eigenvalue	Variance (%)	Cumulative contribution ratio (%)
1	3.469	23.125	23.125
2	2.357	15.716	38.841
3	1.418	9.454	48.295
4	1.102	7.348	55.643
5	0.912	6.083	61.726
6	0.870	5.797	67.523
7	0.840	5.599	73.122
8	0.754	5.028	78.15
9	0.669	4.463	82.613
10	0.553	3.686	86.299
11	0.522	3.479	89.778
12	0.440	2.933	92.711
13	0.441	2.737	95.448
14	0.356	2.371	97.819
15	0.327	2.181	100.000

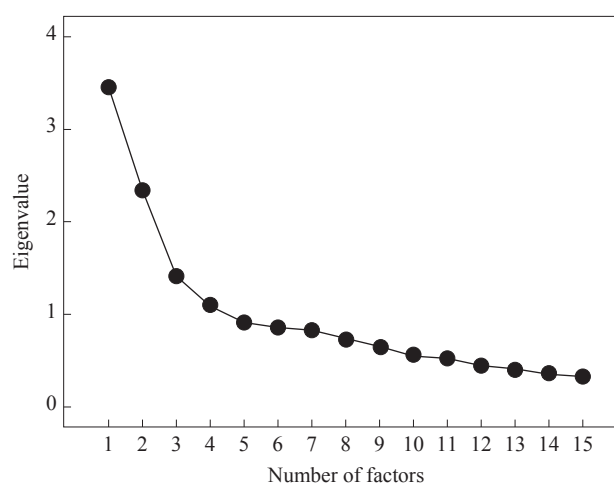


Figure 6: Scree plot obtained by factor analysis

ists to stricken area are examined. Initially, three factors are named. The factor score coefficient matrix is shown in Table 5. As shown in Table 5, factor 1 influenced items in questions (14), (12), (5) and (9). Keywords for the items questioned were “staying”, “food” and “tourist spots”—words associated with tourism. Therefore, factor 1 is named “Sightseeing” in this study.

Factor 2 influenced items in questions (11), (2), (8), (4), (6) and (15). Keywords for the items questioned were “experience”, “confirm” and “volunteer”—words associated with support for earthquake disaster reconstruction. Therefore, factor 2 is named “Reconstruction” in this study.

Factor 3 influenced items in questions (7), (10), (16), (1) and (13). Keywords for the items questioned were “anxious”, “safety” and “power plant.” Therefore, factor 3 is named “Uneasiness” in this study. In Table 6, named factors are summarized. It is important that sightseeing in the stricken area escalates for

Table 5: Results of factor score coefficient matrix

Items questioned	Factors		
	1	2	3
(14) I can spend time unhurriedly in a stricken area.	0.732	-0.189	0.033
(12) I can come into contact with nature and landscapes in stricken areas.	0.716	0.058	-0.069
(5) I can eat delicious local food in stricken areas.	0.668	-0.011	-0.121
(9) There are attractive tourist spots.	0.659	0.094	0.033
(11) I want to participate in earthquake disaster reconstruction.	-0.39	0.802	0.019
(2) I want to confirm the actual situation of the stricken area for myself.	-0.107	0.644	-0.074
(8) I can experience something unique in a stricken area.	0.135	0.49	0.069
(4) I can interact with people of a stricken area.	0.37	0.446	-0.012
(6) I want to support earthquake disaster reconstruction by spending money to visit the stricken areas.	0.328	0.387	0.039
(15) I think that more volunteer activities are needed in stricken areas.	-0.081	0.385	0.091
(7) I feel anxious about the influence of the nuclear power plant.	0.107	-0.019	0.898
(10) I feel uneasy about the safety of local food in stricken areas.	-0.085	-0.033	0.672
(16) I am afraid of visiting the stricken areas.	-0.045	-0.046	0.299
(1) I am afraid of the possibility of aftershocks.	-0.047	0.158	0.282
(13) Public transport in stricken areas is not maintained.	-0.094	0.147	0.232

Table 6: Named factors

	Named
Factor 1	Sightseeing
Factor 2	Reconstruction
Factor 3	Uneasiness

support of earthquake disaster reconstruction in the stricken area.

Moreover, a factor score and frequency of visits to stricken areas were corresponded to survey responses as shown in Table 7. The relationship between frequency of visiting the stricken area and consciousness factors for sightseeing in the stricken area to support earthquake disaster reconstruction were examined. In this examination, numbers of answerer who visited three times at the stricken area were eleven people. Nine out of eleven people considered "Sightseeing", and "Reconstruction". That who visited twice at the stricken area were twenty three people. Nineteen out of twenty three people considered

Table 7: Relationship between factor score of each answer and frequency of visiting

Answerer No.	Factor 1	Factor 2	Factor 3	Frequency of visiting
1	0.718	0.425	-0.08	3
2	0.523	0.289	-0.12	2
3	0.173	0.056	0.501	0
		•		
		•		
		•		
310	0.235	0.503	0.021	1

Table 8: Relationship between frequency of visiting stricken areas and consciousness of the areas

Frequency of visiting	Consciousness
3	Sightseeing and Reconstruction
2	Sightseeing
1	Reconstruction
0	Uneasiness

"Sightseeing". That who visited once at the stricken area were fifty three people. Forty four out of fifty three people considered "Reconstruction". That who visited none at the stricken area were twenty hundred and twenty three people. A hundred and eighty three out of twenty hundred and twenty three people considered "Uneasiness". A tendency of this examination are shown in Table 8. If frequency of visiting the stricken area was at least three times, "Sightseeing" and "Reconstruction" were regarded as important factors for tourists who supported earthquake disaster reconstruction. If frequency of visiting the stricken area was twice, "Sightseeing" was regarded as important for tourists to support earthquake disaster reconstruction. If the stricken area was visited only once, "Reconstruction" was regarded as important for supporting reconstruction. If frequency of visiting the stricken area was none, "Uneasiness" was important to tourists who might have considered visiting the area to support reconstruction.

5. Conclusion

The purpose of this study is to suggest indicators for attracting more tourists to stricken areas. Therefore, a questionnaire survey about sightseeing in the stricken area was executed in

this paper. From the findings, conscious factors to visit the stricken area were examined with a factor analysis of items related to nine questions. As mentioned previously, 204 questionnaires were collected after dissemination and 108 completed questionnaires were submitted via the web site, for a total of 312 collected questionnaires. Of these, 310 were regarded as significant. In this paper, data from 310 questionnaires were applied to a factor analysis to estimate consciousness factors supporting earthquake disaster reconstruction according to question No. 8 in the survey. From these results, three major factors were named, including "Sightseeing" (factor 1), "Reconstruction" (factor 2) and "Uneasiness" (factor 3). Moreover, the relationship between frequency of visiting the stricken area and consciousness factors for sightseeing there to support earthquake disaster reconstruction was examined. If visits to the stricken area are frequent, "Sightseeing" is regarded as important for tourists so that they will support earthquake disaster reconstruction.

The future task is to suggest harmonized indicators for sightseeing and supporting reconstruction.

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Appendix

The other questions are shown below.

- Question No. 1:
"Please show us your attributes as follows:"
 - (1) Sex
 - (2) Age group
 - (3) Occupation

(4) Present address (prefectural)

(5) Home town (prefectural)

- Question No. 2:

"Please select a maximum of three items that you consider as important from the following optional items if you will travel:"

- (1) I want to get refreshed.
- (2) I want to experience particular matters affecting the locals.
- (3) I want to enjoy the experience with everyone.
- (4) I want to explore the area by myself.
- (5) I want to go to a spot where I have never been.
- (6) I want to go with (relationship such as friend, family, spouse, children, etc.).
- (7) I want to stimulate my curiosity.
- (8) I want to appreciate a calm atmosphere.
- (9) I want to be thrilled.
- (10) I want to enjoy the experience by myself.
- (11) I want to enjoy big crowds.
- (12) I want to relax.

- Question No. 5:

"How do you think people in the stricken area feel about tourists who visit there? Please select one item from the following:"

- (1) Extremely welcome
- (2) Slightly welcome
- (3) Slightly unwelcome
- (4) Extremely unwelcome
- (5) Ignorant tourists
- (6) Not sure
- (7) Other

- Question No. 6:

"I think arrangements are sufficient for receiving tourists? Please select one item from following:"

- (1) Strongly agree
- (2) Agree
- (3) Disagree
- (4) Strongly disagree
- (5) I think that there are differences between the stricken areas.
- (6) Not sure
- (7) Other

- Question No. 7:

"I think that the number of events and festivals in stricken areas has increased since the earthquake disaster. Please select one item from the following:"

- (1) Strongly agree
- (2) Agree
- (3) Disagree
- (4) Strongly disagree
- (5) I think that there are differences between the stricken areas.
- (6) Not sure
- (7) Other

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