



## Case study

Cognitive value of tourism resources and their relationship with accessibility: A case of Noto region, Japan<sup>☆</sup>Yuta Uchiyama<sup>\*</sup>, Ryo Kohsaka

Kanazawa University, Graduate School of Human and Socio-Environmental Studies, Kakuma, Kanazawa 920-1192, Japan

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## ABSTRACT

We analyzed cognitive values of the local residents by examining the correlation of the cognitive value and distances from the place of residence by respondents. The results are from the local residents who are frequently the main stakeholders for resource managements. The research site is Noto region in Ishikawa, Japan. We identified that tourism resources can be grouped into three categories: (i) the values of resources distributed along quadratic functions (U curve), (ii) those that decreased along negative linear functions, and (iii) those that did not have clear linear or nonlinear relationships between accessibility and their values. Moreover, impressions by residents in verbal terms were examined whether these impressions had correlation with the tourism resources. The typology and their linkage to impressions by residents in quantitative approaches provide us with unique perspectives for sustainable tourism management and destination management by combining of the different tourism resources.

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## 1. Introduction

Do tourists value a destination regardless of how far away it is? If distance is a factor, then to what extent does the type of resource in question (for example, a landscape, historical site, or hot spring) matter? Tourism involves a variety of different types of resources. There are landscape and food resources, which are regarded as ecosystem services, and traditional or modern festivals as well as historical sites and museums, which are valued as cultural resources.

The questions above are critical for resource managers and policy makers alike, given that tourism is an industry that influences the socio-economic and environmental aspects of communities and wider regions (Lucchetti & Arcese, 2014). Tourism has a diverse range of impacts on a variety of resources. Each resource type, such as landscapes or historical sites, has a different spatial scale, different characteristics, and a unique location. One crucial aspect of a site's spatial characteristics is its accessibility. To provide adequate input for resource managers and

policy makers, it is necessary to explore appropriate ways to manage each tourism resource, starting with distance and accessibility. To identify the most effective methods, it is necessary to explore the distances and values associated with tourism resources.

In the field of tourist decision-making, previous research indicates that accessibility in terms of physical distance is a primary quantitative indicator (Sirakaya & Woodside, 2005). When tourists choose travel destinations, they are influenced both by measurable distance (and accessibility) and also by cognitive distance (Ankomah, Crompton, & Baker, 1996; Massara & Severino, 2013). The importance of accurate or measurable distance is considered in the theory of tourist decision-making, where the focus is largely on the psychology or experience of tourists.

Dong, Zhang, Zhi, Zhong, and Min (2011) have shown that there is a correlation between distance and willingness to pay (WTP) in relation to natural heritage sites, based on the contingent valuation method (CVM). Yang, Lin, and Han (2010) and Huang, Tsaor, and Yang (2012) have analyzed relationships between distance and the number of tourists at world heritage sites, and have pointed out that there is a negative correlation between distance and the number of tourists at a particular site. They regard travel cost as one cause of this negative correlation. Andriotis (2011) has grouped destinations into three categories: coastline, urban, and rural areas. He suggests that the number of tourists at each destination is related to their geographic origin. The measurable distance influences not only a tourist's assessment of resources and choice of destination, but also

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<sup>\*</sup> Corresponding author.

E-mail address: [y-uchiyama@staff.kanazawa-u.ac.jp](mailto:y-uchiyama@staff.kanazawa-u.ac.jp) (Y. Uchiyama).

the activities he or she engages in at the tourist destination. Market segmentation can therefore be based on travel distance, which leads tourists to engage in different activities at the destination (Nyaupane & Graefe, 2008).

In past studies of tourism resources, whether involving historical sites or landscapes, the cognitive values of visitors are frequently overlooked and remain unexamined. The term “cognitive values” has been used by Grace Chen, Chen, Ho, and Lee (2009), and defined as “values that are subjectively assigned by customers.”

The earlier studies summarized above have not focused on differing cognitive values and their relationship to accessibility—or, in other words, on visitors' subjective values and their relationship with the distance between resident and destination. For example, linear and non-linear correlations between cognitive values and distance have never been examined in detail. To identify the different cognitive values assigned to different tourism resources, based on distance, it is necessary to identify the influence of distance on the awareness and behavior of visitors. This is especially important in the field of sustainable tourism management. Identifying cognitive values that relate to the distance between a visitor's residence and his or her destination could enable tourism providers to develop investments and management plans across administrative municipality boundaries.

In related academic fields, researchers have discussed the non-linear relationships between the distance and values of ecosystem services, for example, to determine the suitability of farms located in a particular area for a brand of agricultural products (Carrasco, Nghiem, Sunderland, & Koh, 2014; Fujita, 2006). When it comes to the geographical characteristics of tourism resources, tourists' preferences for different landscapes are examined in relation to environmental management (de Aranzabal, Schmitz, & Pineda, 2009). Accessibility is considered when evaluating the tourism potential of an area, alongside land use distribution (van der Merwe & van Niekerk, 2013; van der Merwe, Ferreira, & van Niekerk, 2013). The importance of accessibility is given the same weight when evaluating different types of tourism resources. However, the relationship between accessibility and tourism potential may differ from one type of tourism resource to another.

Understanding the relationship between distance and the cognitive values of tourism resources can help local municipalities and related tourism management organizations develop better strategies for investment and publicity. Such knowledge can serve sustainable tourism by decreasing the environmental impact of transportation through effective management (Larsen & Guiver, 2013). An appropriate means of transportation should be selected in accordance with the purpose and distance of travel. Moreover, identifying the relationship between distance and the value of tourism resources is important when exploring opportunities for collaboration among stakeholders, including local municipalities, companies, and residents. Investigating distance will help us to understand the area of influence around a tourism site, allowing regions to synergistically manage their tourism resources. For example, in landscape research, the names and visual images of resources, as well as any interactions between visitors and resources, are considered important factors that influence the cognitive values of the resources (Zube, Sell, & Taylor, 1982; Steen Jacobsen, 2007; Zhang, Gursoy, Deng, & Gao, 2015). To provide a basis for local stakeholders' spatial and regional management, we particularly focus on accessibility, which depends on the spatial characteristics of tourism resources.

Herein, we analyze the cognitive values of tourism resources within different distances, based on a survey carried out in the Noto region of Japan. In addition, we identify the relationship between the types of tourism resources and residents' stated impressions of the Noto region, suggesting which impression to consider to enhance the attractiveness of each tourism resource in the region.

## 2. Method

### 2.1. The cognitive value of tourism resources and impressions of the Noto region

Our survey respondents were residents of the nine municipalities of the Noto region in Ishikawa, a prefecture in central north part of Japan. Residents come from Hakui city, Hodashimizu town, Shika town, Nanao city, Noto town, Nakanoto town, Wajima city, Suzu city, and Anamizu town. Understanding the cognitive values of local residents and their relationship to distance is essential when exploring opportunities for collaborative work beyond or within boundaries, such as administrative units and jurisdictions. Local residents are frequently actors at the grass roots level, when it comes to conserving and using tourism resources. We therefore use the cognitive values of local residents as key information for sustainable tourism resource management at the local level. The distribution of the 176 respondents who listed their place of residence is shown in Fig. 1. Based on the results of this questionnaire, we analyzed the relationship between the cognitive values respondents assigned to particular tourism resources and the distance from each respondent's residence to each tourism resource.

The questions are shown below. In Q1, respondents were asked to specify a degree of recommendation for each tourism resource in the list (Table 1). The “degree of recommendation” refers to the individual's level of willingness to recommend certain resources to tourists and others. The questionnaire lists 33 typical tourism resources, and the degree of recommendation is evaluated on a five-point Likert scale.

Q1. Please evaluate each tourism resource on a five-point Likert scale.

A1. 5. Agree; 4. Somewhat agree; 3. Neither agree nor disagree; 2. Somewhat disagree; 1. Disagree.

To analyze the relationship between the cognitive values people assign to tourism resources and their impressions of the Noto region, we have used the results of Q2 in addition to Q1. The impressions shown in Table 2 constitute the expected characteristics (i.e., nature, food, traditional crafts, etc.) of the Noto region, which provide a context for the relationship between cognitive value and distance. The purpose of this analysis is to explore those impressions. The Q2 questions are shown in Table 2; these have been extrapolated from the official tourism literature produced by Ishikawa Prefecture.

### 2.2. Distance between a respondent's residence and the tourism resource

First, residents were asked which municipality they lived in. We then measured the distance between a representative point in each municipality (for example, the city center or town hall) to each tourism resource. In calculating travel distance, we did not simply measure the distance in straight lines, but the travel route along local and national roads.

## 3. Analysis

We then analyzed the relationship between cognitive values and distance based on the results of Q1. In this analysis, we examined the linear or non-linear relationship between them, and identified a linear or quadratic function to fit each relationship. Next, we analyzed the relationship between cognitive values and impressions of the Noto region based on the results of Q1 and Q2 by applying multiple regressions. The results of Q1 were regarded as dependent variables and the results of Q2 as independent variables.

### 3.1. Categorization of tourism resources

We grouped the 33 tourism resources into 5 categories (Table 1). Fig. 2 shows the spatial distribution of those resources. The 5 categories were as follows: 1. Landscapes; 2. Historical sites and museums; 3. Food; 4.

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