

Virtual Tourism of Mount Garut Tourism using Conjoint Analysis

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Abstract:

Background: Tourism in Indonesia faces new normal challenges as a result of the Covid-19 pandemic. Tourism managers are expected to be able to present innovations to revive the tourism sector and the creative economy in Indonesia. Garut Regency is known for its mountain variations. In responding to technological developments, efforts to bring virtual tourism through virtual reality are considered a feasible solution to do. The goal of this research is to learn more about visitor preferences for tourism sites that may be converted into 360 virtual tours on each of Garut Regency's prominent mountains.

Materials and Methods: This study uses a mixed-method approach. A qualitative approach is carried out to produce factors which are then tested through distributing questionnaires. This study included 20 surveyors and 400 visitors who enjoy Mount Garut tourism and expressed their choices for a variety of attractions in six prominent Garut mountains. There are 7 factors which are then tested. The data is then processed by conjoint analysis with traditional methods.

Results: The results of the conjoint analysis revealed mountain tourists' preferences for different locations within the context of mountain tourism. The order of tourist preferences in the virtual tour of Mount Garut, among others: sunrise, panorama, hiking trails, mountain water sound, mountain breezes, the silence of the night and local wildlife noises.

Conclusion: The preference approach in designing mountain tourism innovations is very helpful for tourism managers in considering the types of attractions that can be offered using virtual reality technology.

Keywords: Tourism marketing; Tourism innovation; Virtual tourism; Mount tourism; Tourist preferences

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I. Introduction

The tourism industry is one of the sectors most affected by the Covid-19 pandemic. Whereas before the pandemic hit, the tourism sector in Indonesia was considered to have a fairly large contribution to the country's foreign exchange earnings, including in job creation [1]. The drop in the number of tourists makes cultural products and consumption levels in tourist areas free fall. The budget of ministries and agencies, including the tourism sector, even fell by around 50 percent.

One of those affected is mountain tourism in Garut Regency. Since the beginning of 2020, Mountain tourism in Garut Regency has had to close for a year and make them absolutely no income. There are several steps recommended by the government when Indonesian tourism begins to improve in dealing with the post-pandemic situation, namely maintaining clean, health, safety, and environmental sustainability.

The Ministry of Tourism and Creative Economy (Kemenparekraf) made a new breakthrough for the world of Indonesian tourism. The Covid-19 pandemic that limits people's activities must be interpreted positively, namely by creating works of art and culture that utilize virtual space to introduce and market Indonesian tourism. Tourists who have behavioral intentions visit a destination will provide benefits for travel service provider. Behavioral intentions for visiting a tourist destination can be created or developed by utilizing the content and system used in virtual reality (VR) tourism [2].

Virtual tours are an opportunity for the tourism sector to keep going during the coronavirus pandemic [3]. Therefore, various communities create alternative tourists so that they can still travel even if only from home--via virtual. The use of VR tourism is increasing due to this technology provides benefits in the form of: travel planning and management, tools marketing, and educational tools for tourists [4]. The virtual tour aims to facilitate the community, users of mountain tourism services, to continue to get recreational facilities from limited locations during the pandemic [5].

One of the mountain attractions that has presented 360 virtual tourism is Mount Bromo. These 360 virtual tours are also a means of public entertainment [6] in the midst of the implementation of Emergency of Community Activities Restrictions Enforcement (CARE) in a number of cities and regencies in Indonesia. This Bromo 360 virtual tour can be enjoyed directly or you can also use VR glasses. Although tourists cannot feel the sensation of the natural beauty of Mount Bromo directly, but with this feature, at least it can treat a little longing for travel. Seeing the success of Mount Bromo tourism, mountain tourism managers in Garut Regency need to be prepared to compete in this digital era. With a variety of attractions from four popular mountains, namely Mount Papandayan [7], Mount Guntur [8], Mount Cikuray [9], Mount Talaga Bodas [10], Mount Haruman [11] and Mount Puteri, mountain tourism in Garut Regency can excel as Indonesia's leading mountain tourism.

The purpose of this study is to explore tourist preferences regarding tourist attractions that can be modified into 360 virtual tours on each of the popular mountains in Garut Regency. Conjoint analysis is used to analyze data from respondents by offering a ranking of tourist attractions generated in previous studies. The cognitive and affective processes involved in deciding on a vacation location are referred to as destination choice [12]. The results of the study can be used as consideration for the manager of Mount Garut tourism in presenting alternative tourist attractions in the form of 360 virtual tours.

II. Methods

In the past, there have been two types of preference research: expressed and revealed preference [12]. Each respondent in a choice-based conjoint analysis must select one option from a collection of options at various levels. The purpose of this study is to look at the essential characteristics that attract visitors the most. Conjoint analysis is an analytical technique used in investigations of expressed preferences [13]. This study used a three-stage procedure to attain its stated goals. To create things with a relation to the tourist attraction of Mount Garut, specialists are approached first in semi-structured and panel interviews. The questionnaire was refined after a pilot test. Second, once the questionnaire was completed, an online poll was done with a select group of people to choose the most important destination qualities to include in the conjoint analysis. Finally, a second round of surveying was done, this time with both conjoint and item-based questions. The relevance weights of the destination features were computed based on the survey findings and compared to the results of a typical item-based approach.

In-depth interviews were performed in order to compile a list of destination things that might influence travelers' decisions when visiting Garut. There were two rounds of interviews twelve members of the community of nature lovers were interviewed in the first round. Respondents required to be (1) mountain travelers, (2) have visited 6 mountains that became research objects, and (3) have understanding of virtual tourism in order to participate in the study. The second round of interviews was held conducted via Instagram toward twenty Garut mountain tourism account manager. Similar inquiries were made. The interviewees' profiles are displayed in Table 1.

Table no 1: The profiles of the interviewees.

Item	First round interview	Second round interview
Age		
16-20	1	4
21-25	2	4
26-30	3	4
31-35	3	4
36-40	3	4
Gender		
Male	9	15
Female	3	5
Residential		
Garut	11	18
Outside Garut	1	2
Educational Background		
Senior High School	3	10
Undergraduate	8	10
Other	1	-

All 34 interviews were verbatim transcribed before being entered into ATLAS.ti for analysis. Before coming to a conclusion, the researchers read the transcripts numerous times to acquaint themselves with the material. After two rounds of in-depth interviews, the data yielded a total of 15 qualities. An expert panel comprised of four tourism academics with personal expertise in Garut mount tourism conducted a content validity review of Garut mount tourist destination items derived from the in-depth interviews. Experts were

requested to assess each attribute's representativeness, modify the qualities, and, if required, recommend more attributes. It might be used to improve the face validity of measurements and make any required adjustments before conducting a survey. In the end, a list of 10 qualities was compiled.

An online poll was used to perform a pilot test (N=40) among a sample of nature lovers of Garut Residence. A set of rating tasks on a five-point Likert scale (1=least important, 5=most important) were included in the survey. The test results were utilized to determine the average time it took to complete the survey and to refine the questionnaire and description, including question order, descriptions, and particular question options.

On the basis of acceptable levels of effect size and power, sample size may be calculated. This study involved 20 surveyors and 400 tourists who love Mount Garut tourism that gave their preferences to a number of attractions in six popular mountains in Garut Regency. The study was conducted in the period March 2021 to October 2021. The average respondent is 20 years old with student status who is active in nature lover communities at their university. The respondents consisted of fifty percent men and fifty percent women, of which 40 percent were residents of Garut Regency, and 60 percent came from various regions in West Java Province, Indonesia. Sampling was based on Bernoulli's formula at confidence level of 5% and purposive sampling method, which is aimed at tourists who have visited Mount Papandayan, Mount Guntur, Mount Cikuray, Mount Talaga Bodas, Mount Haruman and Mount Puteri, at least once. The distribution of the questionnaire was carried out using a google form and distributed through the nature lovers WhatsApp group.

III. Result

Each item's average rating is displayed in Table 2. The values are quite comparable, and all of the scores are on the positive side of the scale, which might indicate that the participants regarded all of the items as significant to their trip choice but found it difficult to distinguish between them in terms of relative importance. The average relevance of these 10 traits was recalculated using the average value point of each item, and the top 7 were chosen for the actual conjoint analysis based on their mean scores.

Table no 2: List of mount tourist attractions

Item	Mean	Standard Deviation
City light	3.50	1.01
Photo booth	3.25	1.03
Historical items	3.70	1.04
Panorama	4.80	0.10
Sunrise	4.85	0.09
The silence of the night	4.70	0.20
Hiking trails	4.50	0.50
Mountain breezes	4.70	0.04
Mountain water sound	4.80	0.11
Local wildlife noises	4.65	0.20

The findings of the conjoint analysis indicated mountain visitors' preferences for various places within the framework of mountain tourism. The overall findings of the conjoint analysis are shown in Table 3. According to the Pearson's R value, the results were deemed credible (0.879, $p < 0.01$).

Table no 3: Part-worth of attributes

Item	Level	Utility Estimates	Important Value
Panorama	Relatively charming	0.56	27.88
	Relatively not charming	-0.56	
Sunrise	Relatively attractive	0.67	28.89
	Relatively not attractive	-0.67	
The silence of the night	Relatively peace	0.35	15.47
	Relatively not peace	-0.35	
Hiking trails	Relatively challenging	0.53	26.54
	Relatively not challenging	-0.53	
Mountain breezes	Relatively pleasant	0.43	17.92
	Relatively unpleasant	-0.43	
Mountain water sound	Relatively comfortable	0.48	18.97
	Relatively not comfortable	-0.48	
Local wildlife noises	Relatively good to hear	0.22	8.86
	Relatively not good to hear	-0.22	

Because each characteristic only had two levels, each attribute had a positive and negative value for part-worth utility. A positive part-worth utility indicated that the level was favorable, while a negative part-worth utility indicated that the level was unfavorable. Attractive sunrise attractions are highly favored by tourists with the highest utility score of 0.56, as well as mountain panorama attractions with a score of 0.56, hiking trails (0.53) and comfortable mountain water sound (0.48). To be able to enjoy the sunrise attraction, visitors need to stay at the camp-area provided by the mountain tour manager [7] [8] [9] [10] [11]. Watching the rising sun slowly emerge from behind the mountain. The thick fog that enveloped him made the scene extraordinarily beautiful. Respondents, on the other hand, rated the lowest usefulness for unpleasant mountain breezes and relatively not good to hear of local wildlife noises. There have been many tourists who come to Garut, West Java deliberately to chase Sunrise (sunrise) [9].

There was a clearer difference between the seven qualities in terms of significance value. The proportions of significance ratings for various qualities are also shown in Table 3. Sunrise attraction (28.89%), panorama attraction (27.88%), hiking trails (20.54%), mountain water sound (18.97%), and mountain breezes (17.92%). The feature "local wildlife noises," on the other hand, was rated as the least essential (8.86%).

The findings of the conjoint analysis were compared to the demographic data of the respondents. Gender, age, educational background and residential were used as factors. Several significant differences between the groups were discovered using a one-way ANOVA [14] of the relevance value of each feature. Respondents aged 16-20 years considered the challenging hiking trails (17.23%) as significantly less challenging ($F=2865$, $p=0.034$) than respondents aged 21-25 (22.01%), 26-30 (23.56%), 31-35 (23.76%), 36-40 (31.73%). The differences between the last three groups, on the other hand, were not significant.

IV. Discussion

By knowing the highest utility score from mountain attractions in Garut Regency, mountain tourism managers can prepare a blueprint for making virtual tourism for Mount Garut tourism. Virtual Tour (or also called panoramic tour) is a simulation of a place that actually exists, usually consisting of a 360-photo set, a panoramic photo, a images linked by hyperlinks, or videos [15]. VR can also use elements other multimedia such as sound effects, music, narration, and writing. Virtual tours are usually accessed via desktop computers, or another electronic platform [16].

Mount Guntur has many peaks, there are a total of seven peaks[8]. Moreover, [8] stated that the characteristics of each peak are different, from peaks 1 to 4 almost the same as overgrown with grass that forms savanna, pine, mount hop bush and edelweiss plants. But the most popular for climbers is the 5th peak. From peaks 5 to 7 overgrown by tropical forests and there are wild animals such as wild boars, snakes, panthers, tigers and others. At the top of Mount Guntur, there is a crater formed by a powerful eruption. From the eruption, a wide and deep stretch of caldera was formed. The view that climbers most likes is, of course, when the color of the sky rises or can be called Sunrise (the highest utility score). The panorama will be more beautiful when the sun starts to rise, the tourists will see the silhouettes of Mount Papandayan, Mount Cikuray and Mount Ciremai when the weather is clear. When visitors get to the top, they will be presented with a beautiful savanna and a really cool photo spot. The climb to the Mount Guntur area is known to be heavy, has a steep slope with unstable rock conditions and passes through the wilderness. From the observations on the Mount Guntur tourist attraction, it can be seen that VR for sunrise attractions, panoramas, hiking trails, local wildlife noises can be made.

Mount Papandayan is also one of the favorite locations to get the best sunrise in Garut Regency. Mount Papandayan Natural Tourism Park is still the main attraction for tourists, apart from the many locations for selfies, the convenience and comfort of the facilities are also one of the factors for the high interest in visiting tourists to Mount Papandayan Natural Tourism Park [7]. Besides local tourists, there are also foreign tourists who we have often guided them to enjoy the natural beauty of Mount Papandayan. There are various locations for chasing the sunrise of Mount Papandayan, one of the easiest to reach is at the Mount Papandayan View Tower [17]. If the weather is clear and not foggy from the Mount Papandayan View Tower, visitors can easily see Mount Papandayan Crater, Mount Cikuray, landscape view of Garut Residence at night, and Mount Guntur from a distance. To enjoy the beauty and gain valuable experience on Mount Papandayan, the visitors should consider to choose the right time during the sunny season between April – August. From the observations on the Mount Papandayan tourist attraction, it can be seen that VR for sunrise attractions, panoramas, hiking trails, the silence of the night can be made.

Unlike the attractions of Mount Guntur and Mount Papandayan, the journey up hundreds of artificial stairs from mountainous land, to the top of the hill above 1.450 masl., gives a special sensation for visitors to Mount Puteri. This mountain is often used as a place to appear to enjoy the beautiful atmosphere of Garut Regency through paragliding activities. Strong gusts of wind, as well as sunny day weather that supports paragliding sports [18]. From the observations on the Mount Puteri tourist attraction, it can be seen that VR for panoramas, hiking trails and mountain breezes can be made.

Mount Talaga Bodas offers tours of volcanic activity that are safe to visit. Visitors can soak in the hot water pool near the Talaga Bodas crater for free and can enjoy the mini waterfall around it. Taking pictures in the wide crater area is a visitor's favorite that cannot be found in other mountain attractions in Garut Regency [10]. Along the way to Talaga Bodas Crater, visitors will be treated to views of Mount Sadahurip in the shape of a beautiful pyramid. From the observations on the Mount Talaga Bodas tourist attraction, it can be seen that VR for panoramas, and mountain water can be made.

As the fourth highest in West Java, Mount Cikuray is indeed beautiful. Many travelers are amazed by the sunrise and the sea of clouds at its peak. No wonder this mountain is often a trending topic on Twitter. Another thing that makes Mount Cikuray much in demand by tourists and mountain climbers is its challenging track [9]. If lucky, climbers can find some wild animals while on Mount Cikuray. Some of the wild animals that you can meet on Mount Cikuray include monkeys, wild boar and beautiful birds. From the observations on the Mount Cikuray tourist attraction, it can be seen that VR for panoramas, hiking trails, local wildlife noises can be made.

The last mountain to be discussed is Mount Haruman. For tourists who are adventurous, brave with natural challenges, paragliding Mount Fragrant offers exciting challenges and attractions. The Mount Haruman area is a suitable place for kite flying, with the appropriate mountain height, as well as kite flying facilities available, making this area a paradise for tourists who love kite flying activities [11]. The support of beautiful scenery, the background of rice fields and villages makes the kite flying attraction performed by tourists will give a distinct impression. On top of this mountain, tourists can see Garut Regency as a whole. From the observations on the Mount Haruman tourist attraction, it can be seen that VR for panoramas and mountain breezes can be made.

V. Conclusion

This study explored how seven specific destination qualities created from qualitative and quantitative approaches influenced visitors' decision-making process in the mount attraction by using conjoint measurement to analyze the preferences of mountain tourists. The findings revealed that among these destination characteristics, sunrise attraction was the most important and local wildlife noises were the least important. The same topic was investigated using traditional item-based assessment, which yielded a different outcome from the conjoint analysis. This research continues the method used [12], however, this study might be improved in three ways in terms of its limitations. First, while this study employed a full-profile method [19], future research might replicate a more realistic destination choosing setting, allowing for a more comprehensive review and comparison of different qualities. This method, however, is time-consuming, resulting in a slow response and the possibility of bias in responses. A validity comparison of alternative conjoint assessments, such as adaptive conjoint analysis, might be undertaken to see which methodologies are the most effective in reflecting the preference. Future research might use a cross-cultural approach to look at the differences in preference structures between countries. Furthermore, by modifying alternative conjoint analysis methodologies [20], more qualities might be evaluated, avoiding the omission of important aspects.

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