

# A Factor Analysis of Visitors' Motivation in Visiting the Geology Museum of Bandung

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**Abstract.** The demand of the Geology Museum as cultural attraction in Bandung is getting lower nowadays. From the 2011-2015 data, it shows that some decreases undeniably took place since 2013. Most of the visitors come to Geology Museum due to the school program that has been arranged by their teachers. In order to identify the visitor preference in visiting museum, this present study was then conducted using motivation factors as the variables. This study will be beneficial. In addition, the method of this study was a factor analysis which grouped the factors to the dominant factors that influenced the visitor motivation. The results of this present study showed that the main dominant factor is the main attraction. As a result, the management should pay more attention to the maintenance and make an innovation through the various activities in the museum.

## 1. Introduction

People motivation to visit a particular destination is influenced by their own personal character and living environment [1]. Through the availability of destinations in accordance with their preference, the opportunity of the visitor visiting the destinations become automatically high. Museum as one of the cultural tourism destinations also has its own potential demand related to the visit motivation. Recently, in Indonesia, museum visits are still dominated by small groups of people who have special interests. In fact, it is undeniable that museum has many educational and social benefits for the visitors. Visitor's experience of museum enables people to conceive, imagine and confirm their belonging to a certain social group [2]. Museum now days is more than common place of educational or cultural site, but rather than shifting to be recreational and tourism sector [3] [4]. Some of the museum's exhibit are both have the dual nature culture and recreation [5].

**Table 1.** Number of Visitors to Geology Museum

No.	Year	Visitor Number
1	2011	441.334
2	2012	518.727
3	2013	512.882
4	2014	541.702
5	2015	569.475

*Source: Geology Museum, 2016*

The study on motivation is a part of analysing demands which is highly beneficial in determining the concepts of destination development. In this study, the samples were taken from visitors at the



Geology Museum, Bandung. As a consideration, this museum is considered as one of the high tourist attraction in Bandung. The Geology Museum is one of the museums that has a main collection of various objects and information regarding the history of the formation of the earth. As one of the historical relics, the Geology Museum has uniqueness as a tourist attraction. Unfortunately, the rate of visits has undergone a decrease recently.

Based on Table 1, it can be seen that the number of visitors at the Geology Museum from 2012 to 2013 has undergone a decrease. However, fortunately, besides the above aforesaid period, the number of visitors has in fact undergone a significant increase. Based on the evaluation results of the satisfaction studies in this type of museum in 2016, it has been predicted that the number of visits from 2012 to 2014 will undergo an increase around 10%. In fact, the increase only reached 4.4%. Therefore, it indicates that the expected target is not successfully achieved even though the GNCM program has been implemented. Obviously, it indicates that it is still required to improve the implementation of the GNCM program.

In regard to the purpose of this study, it aims at finding out the factors that are considered as the determinant attribute. Therefore, in the future, the results of this study can be used as a reference either for the further studies or for the managers in determining the appropriate strategies in order to increase the visit numbers in the Geology Museum, Bandung.

The tourist motivation in order to have a trip is determined by the push and pull factors [6] [7]. In particular, the push factor originally comes from the tourists and the pull factor comes from tourist destinations. Push factors are understood as some factors that driving visitor to visit from the internal factor [9] [10] [11]. There are several factors such as escape as a desire to break away from the boring environment, play as a desire to enjoy the fun through games, relaxation as a desire to relax body to get refreshment, and also strengthening family bonds as a desire to strengthen the relationship among family members. Instead of that others push factors are also related with social and cultural factors such as prestige as a desire to show prestige, social interaction as desire to engage in social interaction with others, romance as a desire to get a romantic feeling., educational opportunity as a desire to gain knowledge of a tourist destination. Factors that related with psychological aspect also included such as self-fulfillment as a desire to find the identity, wish-fulfillment as desire to realize the dreams that have long been dreamed, physical or physiological motivation. A desire to relax, get physical and physiological health and comfort and social motivation or interpersonal motivation. It is considered to be prestigious and social.

However, besides push factors, there are also some push factors that driving visitor to visit as an external aspect. The pull factors are understood as follows attraction, amenities, accessibility or access that can be used, the ways to reach the location, Activities or activities that can be done; ancillary services or attractions that support tourisms; weather of the destination site; culture in the form of value that can be obtained from destinations; natural and / or artificial environments in tourist destinations; prices set by tourist destinations; souvenir products provided in tourist destinations; special events offered, besides the main attraction; company Incentive in the form of travel bonus; image owned by a tourist destination; political and security stability of the tourist destination; involvement of tourism institutions; and travel services, retail advertising, and wholesale marketing [12] [13] [14].

## 2. Methods

This present study was conducted by involving 100 visitors at the Geology Museum, Bandung as the samples which were spread out on April 2017, through a convenience sampling technique. With respect to the research method, the data in this study were analyzed using a factor analysis, specifically by identifying the relationships among the variables (data summarization) and creating a new group of variables in order to replace a particular variable (data reduction).

The processes carried out in this factor analytical study were to determine the to-be-analyzed variables, to test the validity and reliability of the variables, to test valid and reliable variables using Bartlett's test of sphericity and MSA measurement. Furthermore, the phases of analysis continued to

carry out the factoring, factor rotation, interpretation of formed factors, and comparison between the results of the discovery of new factors and the existing factors in the previous studies. In addition, this study used SPSS 20.0 as a tool for the data processing.

### 3. Results and Discussion

#### 3.1. Characteristics of Visitors at Geology Museum in Bandung

According to the survey, the characteristics of the respondents in fact varied (Table 2). However, they were dominated by high school students, which visited the museum for the purpose of their study and their visit was mostly organized by their school.

**Table 2.** Visitor characteristics

Characteristics	Measurement	Percentage
Age	15 – 25 years old	97%
Gender	Female	70%
Marriage status	Not married	98%
Origin	Bandung City	70%
Education background	High school	72%
Occupation	Students	78%
Income per month	Less than Rp. 1.000.000, -/ month	58%
Motivation of visit	Tour study/education purpose	63%
Pattern of visit	With friends or families	58%
Visit frequency	First visit	46%
Source of information	Friends and family	81%
Preference activities	61% observing the collection objects	61%

#### 3.2. Factor Analysis Results

**3.2.1. KMO Test and Bartlett.** The KMO and Bartlett tests were conducted in order to show the correlation among the factors as a whole. Table 3 showed that the KMO value was about 0.762 (greater than 0.5) indicating that the samples were sufficient. The significance number was 0 (zero), smaller than 0.5, indicating that each existing variable could be further analysed.

**Table 3.** KMO & Bartlett Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.762
	Approx. Chi-Square	2194.907
Bartlett's Test of Sphericity	Df	703
	Sig.	.000

**3.2.2. MSA Anti Image Correlation.** Furthermore, the screening of variables was conducted by eliminating the factors that had MSA values which were less than 0.5. The MSA Anti-Image Correlation table was shown in Table 4

The results as shown in table 4 were the factors that had been extracted by eliminating the two factors. In particular, these two factors covered getting out of the routine and looking for a new atmosphere. In fact, these two factors had been eliminated. Therefore, all the factors in table 4 could be further analysed because all MSA values > was 0.5.

**3.2.3. Analysis Communalities.** Furthermore, the analysis of communalities was carried out in order to show the possibility of the factors that could be explained. Based on the results of the analysis, it was shown that the Social motivation or Interpersonal motivation variables was considered as the biggest dimension role resulting in (0.855) and the Self-fulfillment was considered to be the smallest one

resulting in only (0,554). Therefore, it was concluded based on the assumptions that the greater the values of communalities were, the greater the characteristic of the origin variable could be represented by the formed factors.

**Table 4.** Values of MSA *Anti-Image Correlation* Table

No	Variabels	MSA Value	No	Variabels	MSA Value
1	Relaxation	635	18	Tourist security	797
2	Play	637	19	Transportation availability	770
3	Strengthening family bonds	581	20	Feasibility of road access	770
4	Museum reputation	707	21	Variety of activities	813
5	Museum popularity	786	22	Uniqueness of activities	876
6	Social interaction	834	23	Availability of supporting facilities	782
7	Romance	808	24	Feasibility of supporting facilities	834
8	Educational opportunity	662	25	Weather	730
9	Self-fulfilment	881	26	Culture	650
10	Wish-fulfilment	798	27	Natural and / or artificial environment	727
11	Desire to recreation	810	28	Price	583
12	Quietness	775	29	Souvenir products	765
13	Social motivation or Interpersonal motivation	601	30	Special event	780
14	Uniqueness of collection objects	853	31	Company Incentive	861
15	Attractiveness of interpretation facilities	837	32	Image	915
16	Communication systems	818	33	Politics and security stability	843
17	Health Facilities	890	34	Involvement of tourism institutions	843
18	Tourist security	797	35	Tourist location services	898

*3.2.4. Factoring and Total Variance Explained.* After the completion of the communality analysis, the research process was continued to the next step that was called as the Total Variance Explained analysis. This analysis showed the magnitude of the percentage of total diversity that could be explained by the diversity of the formed factors. The factors that solely had a greater Eigenvalues value which was equal to 1 could be maintained. Based on the analysis of Total Variance Explained, the results showed that the preceding variables could be grouped into 10 new factors. In fact, it could be seen that the value of eigenvalues which was greater than equal to 1 was only possessed by the 10 factors.

*3.2.5. Rotation and Grouping Factors.* The ten groups of factors are considered as the factors that influence the motivation of tourists to make a visit to the Geology Museum, Bandung. Due to the non-absolute results, the process of component Score Coefficient Matrix can be performed in case any kind of doubt arises.

Component Score Coefficient Matrix is used to show the coefficient value or score of each variable when the correlation value is not in order. We can re-summarize the set-up of variables into the proper factors viewed from the correlation strength between the variables and the factor components. The results of this analysis showed the following findings:

- a. Factor 1: The uniqueness of collection objects, the attractiveness of means of interpretation, communication systems, and uniqueness of activities.
- b. Factor 2: Souvenir products, special events, corporate incentives, and political and security stability.

- c. Factor 3: Tourist security, transportation availability, road access feasibility, availability of supporting facilities, and feasibility of supporting facilities.
- d. Factor 4: Relaxation, Social interaction, romance, natural and / or artificial environments, and tourist location services.
- e. Factor 5: Museum reputation and popularity
- f. Factor 6: Educational opportunity, self-fulfillment, wish-fulfillment, and price.
- g. Factor 7: Play, Strengthening family bonds.
- h. Factor 8: Weather and desire for recreation.
- i. Factor 9: Gaining serenity, diversity of activities, health facilities, image, and involvement of tourism institutions.
- j. Factor 10: Social or interpersonal motivation and advertising / promotion of tourist locations.

From the re-summation of the indicators on each factor, there were some changes in terms of the indicators of diversity of activities, image, and tourism institution involvement which moved from factor 1 to factor 9. Then, the relaxation indicator moved from factor 7 to factor 4. In addition, the indicators of tourist location promotion and advertising moved from factor 4 to factor 10. Finally, the indicator of desire for recreation and cultural indicators moved from factor 7 to factor 8.

*3.2.6. A New Factor Comparison towards Initial Factors Influencing Visit Motivation to the Geology Museum, Bandung.* Based on the results of factor analysis conducted by the researcher from various previous studies, there were 36 indicators of visit motivation assessment to the Geology Museum, Bandung. Based on the 36 indicators analysed by the researcher, it yielded 10 new factors. Therefore, based on above analytical results, the arising new factors will be compared with the studied initial factors. As a result, based on the result of the comparison, it could be seen that whether or not there is a difference and similarity between the new arising factors and the studied initial factors.

Basically, the initial factors in which the results have been analyzed then merged into the new factors. In this case, the differences arising after the new factors have been disclosed in fact have represented several factors from the different previous studies. Obviously, it means that the new factors found by the researcher can be used in some previous studies that are related to the process of factor analysis in order to determine the tourist motivation in visiting a tourist destination without requiring the analysis from many factors. In essence, the discovered new factors are considered to be more efficient to use as an assessment aspect in identifying the tourist motivation to visit a tourist destination.

Based on the questionnaire analysis results circulated to the respondents, the tourists visiting the Geology Museum, it then resulted in 10 new factors that affect the tourist motivation [10].

In addition, several formed factors can be elaborated as follow: factor 1 is called as a main attraction factor, factor 2 is called as an attraction of support factor, factor 3 is called as an infrastructure factor, factor 4 is called as a motivation factor, factor 5 is called as a reputation factor, factor 7 is called as a social interaction factor, factor 8 is called as an am enitas factor, factor 9 is called as a security factor, factor 10 is called as a social motivation factor [11].

Based on those aforementioned factors, it can be identified that the greatest motivation factor is the main attraction. On the other hand, the lowest one is the social motivation factor. With regard to the difference between the earlier studies and this present study, it can be found in case of the number of the new emerged factors and the offered conceptual model [13].

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For the further studies, it is expected that this study can become a real contribution towards the thinking framework based on motivation factors of the visit to the Geology Museum, Bandung. Therefore, the further studies can continue the results of this study through the considerable strategies in order to increase the visitor numbers coming to the Geology Museum.

#### 4. Conclusions

The demand of the Geology Museum as cultural attraction in Bandung is getting lower nowadays. From the 2011-2015 data, it shows that some decreases undeniably took place since 2013. Most of the visitors come to Geology Museum due to the school program that has been arranged by their teachers. In order to identify the visitor preference in visiting museum, this present study was then conducted using motivation factors as the variables. This study will be beneficial. In addition, the method of this study was a factor analysis which grouped the factors to the dominant factors that influenced the visitor motivation. The results of this present study showed that the main dominant factor is the main attraction. As a result, the management should pay more attention to the maintenance and make an innovation through the various activities in the museum.

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