

The Analysis of Future Religious Tourists Preferences Using Kano and Markov Chain Model

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Abstract: Religious tourism as one of Syariah tourism in Indonesia has a potency to be the main tourism destination, since, 89% of Indonesian people are Muslim. Traditional approach of tourist design has focused on current visitor needs. However, it is necessary to effectively compete in the long-term period, so that, tourism management should take into account future visitor needs as well. By using Kano Model and Markov chain, hopefully, future religious tourist preferences can be well predicted. The use of Markov chain is to predict steady-state visitor's preferences in the future, so that, a long-term visitors and managers stay awake. The 199 respondents who have been visiting one out of 8 sacred sites involved in this study. They filled out two questionnaires of Kano survey and past and present survey. As a result, Kano Model helps decision maker to focus on service attributes that have big impact on visitor satisfaction. There were 11 service attributes that categorized as attractive. While service that would be attractive in the future is "Employees have well understanding about condition and interesting thing of tourism object".

Key words: Religious tourism, Kano Model, Markov chain, future preferences, tourism, visitors

INTRODUCTION

Religious tourism as one of syariah tourism in Indonesia has a potency to be the main tourism destination since, 89% of Indonesian people are Muslim (World Tourism Organization, 2011). Moreover, so many figures had a significant role in distributing Islam to all over Indonesia, so that, keeping the proofs and history is an important thing to do. In addition for regions that do not have a prestigious tourist destination, religious tourism object could be an alternative of new source income that can be optimized.

Religious tourism is tourism which is motivated by specific purposes related with people's belief (Raj and Morpeth, 2007). It can be a way of enriching knowledge and transferring religious values into global humanism (Singh, 2013). Moreover, religious tourism is a constructive tool to strengthen local economy and generating employment opportunities by promoting variegated spiritual (Kundu, 2017; Vijayanand, 2012; Singh, 2013; Albaladejo *et al.*, 2014). Generally, religious tourism objects are also heritage tourism objects (Irimias and Michalko, 2013) for example, mosque, cathedral, temple, shrine and so on. Hajj is excluded, since, it is an obligation for Muslims who are able.

There is still limited research of religious tourism mainly in evaluating satisfaction. Hughes *et al.* (2013) examined the satisfaction of tourists who visit the Cathedral in the United Kingdom and the results showed that there should be a balance between providing relevant and common information related to the

religious aspect because of various tourist's motivation. World Tourism Organization (2011) stated lack of statistical data on religious tourism is due to the close relationship between religion and culture. It was difficult to identify tourist motivation except in certain cases such as pilgrimages and religious festivals.

Other studies which are not directly related to religious tourist satisfaction is Irimias and Michalko (2013) which provides a framework of Christian religious tourism and discuss the aspects of culture. While Eugene (2013) concluded that a tourist who needs a holistic therapy usually go to the tourist attraction of religion to gain spiritual fulfillment, rejuvenation of body, mind, soul and for self-actualization. Chen and Chen (2010) examined the quality of the experience, value perception, satisfaction and behavioral intentions in heritage tourism involving 442 guests in four heritage sites in Taiwan while a similar study conducted by Prayag *et al.* in the world heritage site, Petra.

In Indonesia, Hengky (2003) examined sustainability of 17 religious tourisms (sacred sites) in Java from social impact of economic, environmental and government policies. According to Hengky (2003), the sacred site of Sunan Gunung Jati-Princess Ongtin is a destination that gives the best socio-economic impact as well as support to the maintenance of the surrounding environment. While sacred site Cut Nyak Dien is the site which got the best support for development from government.

According to Callista and Putro (2013) who studied religious tourism facilities in Sacred site of KH.

Abdurrahman Wahid, the society surrounding place satisfied with the facilities provided but visitors said the facilities should be improved. In addition, the study results show that the public does not feel disturbed by the existence of religious tourists. Recommendations from this study are to repair and improve the facility attributes that considered less increase attention and government role for developing management of religious tourism as well as increase promotion through various media either online or print out to attract local and regional investors.

Traditional approach of tourist design has focused on present customer needs. Rahmillah and Wijaya (2015) has conducted analysis of service quality in religious tourism for 8 sacred sites in Java. However, in order to effectively compete in the long-term period, tourism management ought to take into account future visitor necessity as well. Currently, there is no specific method used to predict future customer needs in tourism industry. Practically, the use of Markov chain can provide important information for manager or decision maker to learn how the dynamics of visitor necessity (i.e., service attributes) as time goes by from a probability viewpoint.

According to Wu and Shieh (2006), the gathered information in daily basis is relatively uncertain, thus, the use of Markov chain model might be more suitable to analyze visitor needs and predict the importance trends of technical measures from a probability point of view. Meanwhile, Kano Model will be used to find the Attractive (A) service attribute or delighters, go further away from customer aspiration and supposition. Small improvement on delighters brings a great deal of tourist satisfaction. This study aims to find current attractive service attribute as well as predict future religious tourist preferences by using Kano Model and Markov chain (Kano, 1984).

MATERIALS AND METHODS

The subject of this research is respondents who have been visiting tourism object such as cemetery of Sunan Kalijaga, Sunan Kudus, Sunan Ampel, Sunan Giri, Sunan Malik Ibrahim, Gus Dur, Kyai Kholil Bangkalan or Raden Patah. Retrospective method is used in this study. It uses information from the past events.

Primary and secondary data are gathering in this study. Primary data is obtained from interviews and questionnaires distributed to religious tourists whereas basic questionnaire adopted from Rahmillah and Wijaya (2015) is called as secondary data. It is used to make Kano survey and “Past and Present Survey”.

Kano survey consists of two parts; the first part is the demographics of the respondents. Such information is useful for comparisons between categories such as age, education level, motivation and frequency of visits. While the second part evaluates Kano categorization for each service attribute. For each attribute, given a pair of question where tourists can answer with one of five different ways (1 = satisfied, 2 = it should be that way, 3 = I am indifferent, 4 = I can live with it, 5 = dissatisfied).

“Past and present survey” questionnaire is divided into two parts. The first part is demographics while the second part measures the importance level of attributes for services based on past experience and the present preferences. For each attribute, given two pairs of questions that can be answered with 3 different ways (R = Low, S = Medium, H = High). Past selection is the selection of the level of interest by tourists when visiting religious tourism a year ago while the present refers to the state when the last visiting happened.

Figure 1 shows the number of respondents get involved in the first questionnaire of Kano survey whereas forty 6 people filled out Past and Present Survey. The data analysis is divided into two categories to get more in-depth information which are group of teens and adults. According to Santrock (2002), the development of human chronological age is divided into 8 stages. In this study, respondents with aged <22 years are categorized as a teenager while those aged over 22 years including to adults. In addition, the age and experience of the past is one of the factors that lead to difference in perception (Gellert and Schalk, 2011).

Therefore, respondents are grouped into 123 teenagers and 30 adults for the survey Kano while 26

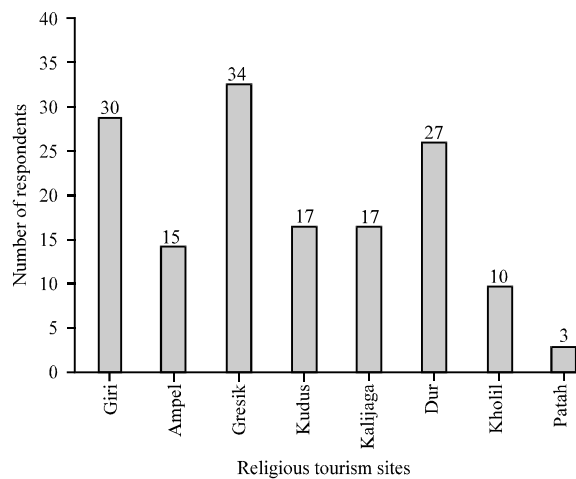


Fig. 1: Distribution of respondents

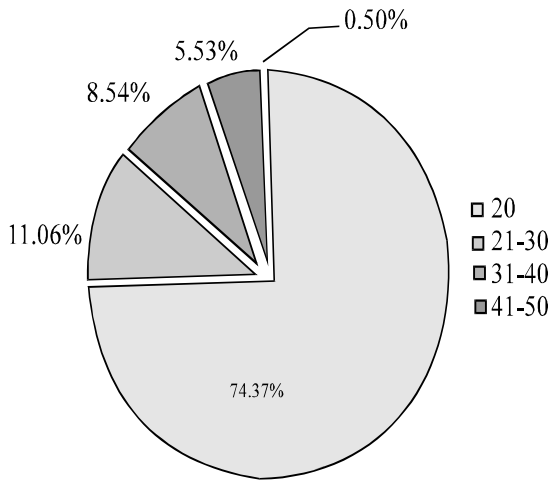


Fig. 2: Age of the respondents; Age (years old)

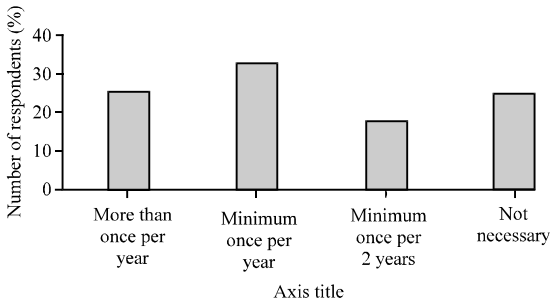


Fig. 3: Visiting frequency

teenagers and 20 adults for the second survey (“past and present survey”). Respondents in this study consisted of 60.80% males and 39.20 females. Figure 2 shows the variability of respondent’s age.

All respondents 100% are not a first-time visitor. The frequency of visiting sacred site is categorized as follow (Fig. 3): 25.13% more than once per year; 32.66% at least once per year and 17.59% at least once per two years and 24.62% stated that it is not necessarily.

Then, the companion is categorized as group (not family) 85, 7.04% with a spouse or child or family and 7.54% with friends and 0% alone. If it is seen from job, majority of respondents are student/college student approximately 80.4% while 19.6 % are working people either as government officer, private worker or entrepreneur (Fig. 4).

According to Fig. 5, it can be seen that the proportion of student who visit religious tourism is 73.37%. Actually, based on observations in the field, majority of pondok pesantren, either facilitated or

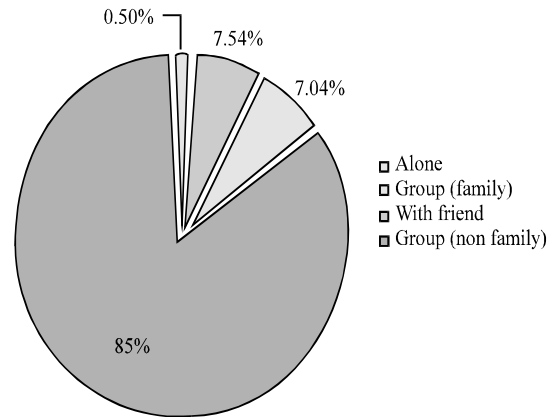


Fig. 4: Respondent’s companion

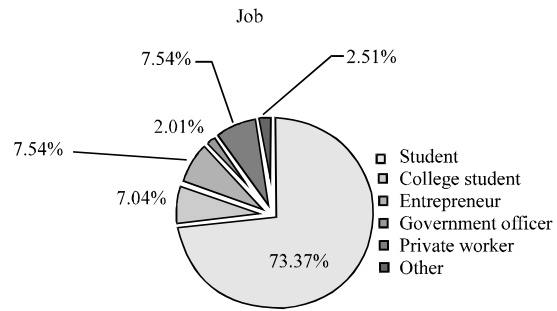


Fig. 5: Distribution of respondent’s job

not facilitated with schools, they have Islamic tour programs, especially, tour to sacred sites that must be followed by students. The tourist destination usually is mixed between public and religious tourism. Therefore, it is not surprising anymore if the proportion of students who visit religious tourism is higher than others. While for adult group, usually their visit is in community such as from village, mosque or because of special months. In addition, any travel service bureaus have started to glance share of this market.

Singleton *et al.* (2004) examined differences in spirituality, adolescence and early adulthood while Gellert and Schalk (2011) argues that the age and experience of the past is one of the factors that lead to differences in the perception of the quality of the relationship and the performance of the team’s performance. The diversity of religious tourism visitors from among teens and adults make managers need to think about the right strategies to attract the existing market share (market segmentation) because of possible differences in the perception of teenager and adult (Fig. 6 and Table 1).

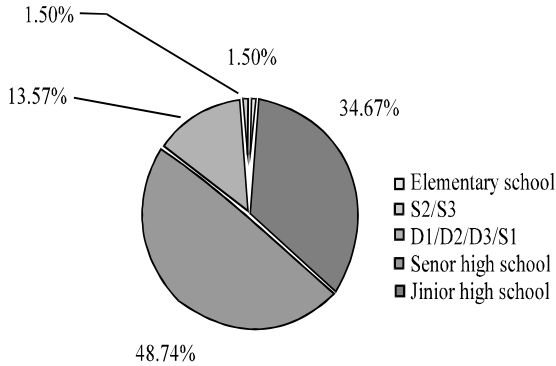


Fig. 6: Educational background of respondents

Table 1: Description of variables (Rahmillah and Wijaya, 2015)

Servicequality/ code	Description
Tangible	
SQA 1	Parking area is clean and safe
SQA 2	Market is clean and comfortable
SQA 3	Transportation cost is affordable
SQA 4	Food and products sold are affordable
SQA 5	There is comfortable and adequate rest area
SQA 6	There is a clear direction
SQA 7	Toilet and ablution are clean and comfortable
SQA 8	Praying equipment are clean and adequate
SQA 9	Shoe rack is clean and safe
SQA 10	Trash bins are clean and adequate
SQA 11	There is special way for disable
SQA 12	There is a safe children playground
SQA 13	There is an interesting historical display and figure
SQA 14	The lighting is appropriate
SQA 15	There is pleasant atmosphere
SQA 16	The originality of historical building is well maintained
SQA 17	Indoor and outdoor are well maintained
SQA 18	There is separation between entrance and exit
SQA 19	There is a site map so that visitors will not lost
Reliability	
SQB 1	Information of visitors flow can be observed clearly
SQB 2	Employees provide clear guidance
SQB 3	Management always strive to give best services
SQB 4	Water is always available and running smoothly
SQB 5	Overall, you get what you want
Responsiveness	
SQC 1	Employees provide services quickly
SQC 2	Employees are always willing to help visitors
SQC 3	Employees are able to arrange visitors to avoid long queues
SQC 4	Information of services and facilities are provided
Assurance	
SQD 1	Employees have enough knowledge to answer visitor's questions
SQD 2	Employees have well understanding about condition and interesting thing of tourism object
SQD 3	Tourism object provides a safe environment

RESULTS AND DISCUSSION

Kano Model: Specifically, Kano Model will provide a view to the service designers to not only classify the attributes of service but also, prioritize the improvement of service attributes that have a real impact on the emotional needs

Table 2: Attractive service of adults group

Code	Description
SQA 7	Toilet and ablution are clean and comfortable
SQD 2	Employees have well understanding about condition and interesting thing of tourism object

Table 3: Attractive attribute of teenagers group

Code	Description
SQA 1	Parking area is clean and safe
SQA 2	Market is clean and comfortable
SQA 5	There is comfortable and adequate rest area
SQA 7	Toilet and ablution are clean and comfortable
SQA 8	Praying equipment are clean and adequate
SQA 10	Trash bins are clean and adequate
SQB 2	Employees provide clear guidance
SQB 3	Management always strive to give best services
SQD 1	Employees have enough knowledge to answer visitor's questions
SQE 1	Employees are helpful, friendly and respectful

of visitors. In fact, an attractive attribute is delighter which can increase visitor's satisfaction. However, if it is seen by the perception of adulthood on religious tourism, there are only two attractive attribute as shown in Fig. 7 and Table 2.

According to the Kano Model for teenagers group, there are 8 attractive service attributes as shown in Fig. 8 and Table 3. This result is in line with Gellert and Schalk (2011) in which different perception of adults and teenagers may lead to different of perceptio. Therefore, there are 11 attractive service attributes from those two groups.

Markov chain analysis: Potential participants are asked to evaluate the potential interest of 34 service attributes. This survey will show how each item will change its interests from time to time. According to Wu and Shieh (2006) interest is categorized into high (T) with weight of 5, Medium (M) with weight of three and Low (L) with weight of onoe. The probability is determined by the initial choice preferences of visitors in the past while the conditional probability is calculated from past and present preferences (Table 4 and 5).

Given the preference level and the initial and transition probabilities, the expected weight of preference of each attribute changed in the next few periods is calculated. For instance for SQA1, the transition probability is:

$$P = \begin{bmatrix} 0.83 & 0 & 0.17 \\ 0.42 & 0.55 & 0.03 \\ 0.22 & 0.56 & 0.22 \end{bmatrix}$$

In which for example, $p_{21} = 0.42$ represents the first step transition probability of changing from S (medium) to T (high). It is assumed that these probabilities are steady over time.

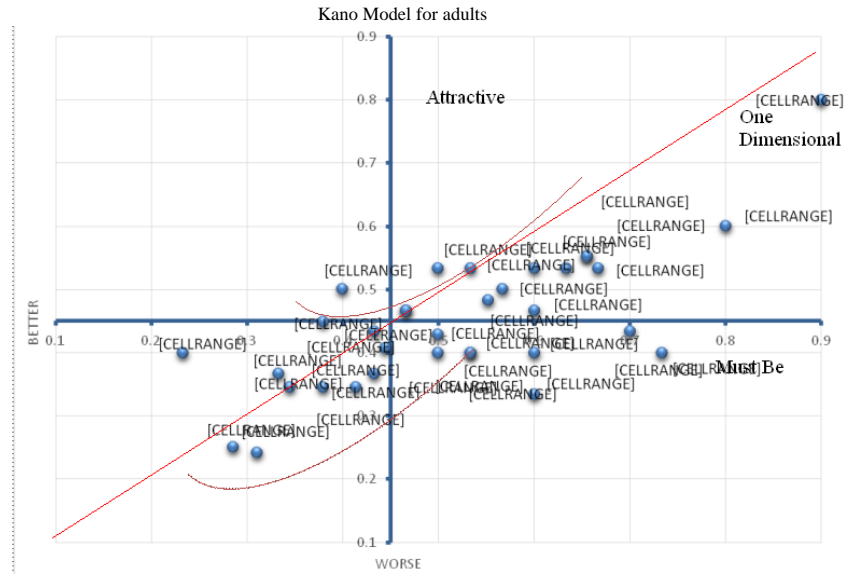


Fig. 7: Kano Model for adults group

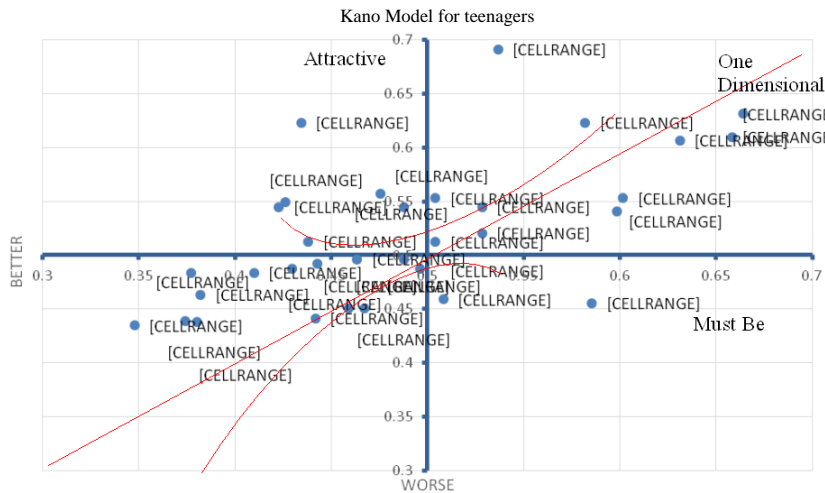


Fig. 8: Kano Model for teenagers group

Table 4: Calculation of attractive service

Items	Current weight		Expectation weight		Gap	
	Te*	A**	Te	A	Te	A
SQD2	4.07	4.33	4	2.97	0.07	1.36

*Te = Teenager, **A = Adults

Table 5: Attractive service in the future

Item	Service attribute	Gap*	Present Kano category
SQD2	Employees have well understanding about condition and interesting thing about tourism object	0.07	O

*Gap = Current weight-expectation weight

Steady-state probability is calculated using Microsoft Excel and solver. The expectation weight is calculated by calculation $(V1 \times 5) + (V2 \times 3) + (V3 \times 1)$. Then,

the gap is calculated by finding the difference between the current weight (importance score of Servqual questionnaire from Rahmillah and Wijaya, 2015) and the expectation weight. The Expected Weight (EW) of customer preference changed over time and the full illustration can be seen in Anderson *et al.* The short illustration to represent that dynamic customer preference is given as follow EW of SQA1 (step-1):

$$= \begin{bmatrix} 0 & 0.67 & 0.2 \end{bmatrix} \begin{bmatrix} 0.83 & 0 & 0.17 \\ 0.42 & 0.55 & 0.03 \\ 0.22 & 0.56 & 0.22 \end{bmatrix} \begin{bmatrix} 5 \\ 3 \\ 1 \end{bmatrix}$$

EW of SQA1 (step-2):

$$= [0 \ 0.67 \ 0.2] \begin{bmatrix} 0.83 & 0 & 0.17 \\ 0.42 & 0.55 & 0.03 \\ 0.22 & 0.56 & 0.22 \end{bmatrix}^2 \begin{bmatrix} 5 \\ 3 \\ 1 \end{bmatrix}$$

EW of SQA1 (step-3):

$$= [0 \ 0.67 \ 0.2] \begin{bmatrix} 0.83 & 0 & 0.17 \\ 0.42 & 0.55 & 0.03 \\ 0.22 & 0.56 & 0.22 \end{bmatrix}^3 \begin{bmatrix} 5 \\ 3 \\ 1 \end{bmatrix}$$

EW of SQA1 (step-4):

$$= [0 \ 0.67 \ 0.2] \begin{bmatrix} 0.83 & 0 & 0.17 \\ 0.42 & 0.55 & 0.03 \\ 0.22 & 0.56 & 0.22 \end{bmatrix}^4 \begin{bmatrix} 5 \\ 3 \\ 1 \end{bmatrix}$$

EW of SQA1 (step-5):

$$= [0 \ 0.67 \ 0.2] \begin{bmatrix} 0.83 & 0 & 0.17 \\ 0.42 & 0.55 & 0.03 \\ 0.22 & 0.56 & 0.22 \end{bmatrix}^5 \begin{bmatrix} 5 \\ 3 \\ 1 \end{bmatrix}$$

From those two groups, only one service attribute that is still considered to be attractive in the future with the gap score of 0.07. The calculation is based on a value of <0.5 (Hartono *et al.*, 2012).

The analysis from teenager’s point of view concluded that the employee’s understanding about the condition and exciting things from the cemetery environment is something that should be considered in the future. Eventhough, present Kano category for SQD2 is One-Dimensional which means attribute shows the linear relationship between customer satisfaction and the performance of the attribute-the better the performance, the higher the level of customer satisfaction, it goes to Attractive (A) in the future. Attractive (A) attributes, known as delighters, go further away from customer aspiration and supposition. A little performance on delighters brings a great deal of excitement.

CONCLUSION

Based on the discussion above, the conclusions are: Kano Model helps decision maker to focus on service attributes that have a big impact on visitor satisfaction. Eleven service attributes were categorized as attractive. The use of Markov chain is to predict steady-state

visitor’s preferences in the future, so that, a long-term visitors and managers stay awake. Service that would be attractive in the future is “Employees have well understanding about condition and interesting thing about tourism object”. So that, there are twelve services should be well maintained.

RECOMMENDATION

Further research should consider various religious tourism sites.

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