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# WILLINGNESS TO PAY ON VISIT TO MUSEUM: A CONCEPT PAPER OF CHOICE MODELLING APPLICATION FOR NATIONAL MUSEUM OF MALAYSIA

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***Abstract:*** *A museum is one of the cultural institutions which has profound economic impact in the sense that it serves as a way to fuel the creative energy that has become such an integral part of modern lives and can provide a boost to regional tourism. There are almost 100 public museums in Malaysia, and one of its most famous museums is Muzium Negara. In the early years, Muzium Negara is capable of attracting more than one million visitors to the museum annually. However the total number of visitors drops to 60 percent since the 1990s. While the current research acknowledges the demand of visiting museum as cultural destination, the majority of studies focus less on the investigation of visitor value on the museum. Clearly, there is a need to explore whether there are pertinent economic values towards Muzium Negara. Thus, choice experiment approach will be used as it offers a practical way of understanding visitor preferences to cultural attractions and then helps to develop strategies that would transform traditional visitors to be more frequent consumers. Four attributes in the categories facilities and service (Exhibition Setting Change, Multimedia Audio-Visual Interactive Service, Sign Interactive and web access about collection); and Management (Museum Information Package, Visitors' Guide, Visitor Participation, and Customer Feedback System) will focus as visitor preferences whether there are willing to trade their preference with some entrée fee.*

***Keywords:*** *Cultural Intuition, Cultural Tourism, Museum, Muzium Negara, Economic Valuation, Choice Modelling*

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## Introduction

### *Muzium Negara as economic development in the tourism industry*

The International Council of Museum (ICOM, 2017) defines a museum as "a non-profit, permanent institution in the service of society and its development, open to the public, which acquires, conserves, researchers, communicates and exhibits, for purposes of study, education and enjoyment, material evidence of people and their environment." In addition to the above functions, museums also provide extended and diverse services for visitors, including engagement in leisure activities, artistic and aesthetic development, cultural appreciation and development of moral and ethical sentiment. It is agreed that museums are built not only to educate visitors, but also for collecting and preserving valuable objects and artefacts (Bryant, 1988). Several researchers cited in the aforementioned study agreed that museums have to recognize visitors' needs and provide services that they want (Falk, 1998; Sheng and Chen; 2012; Yoshimura, 2014; Smith, 2015). Moreover, Pop and Borza (2016) suggested that visitor services could be the most distinguishing factor as to why a visitor goes to one museum more often than another.

Bukowski (2013) stated that tourism experiences are composed of four basic characteristics that are equally applicable to museums: 1) the experience is intangible; 2) the experience consists of activities rather than things; 3) the experience is produced and consumed simultaneously; and 4) the customer has to be present and participate in the production process. Black and Skinner (2016) suggested that these attributes reflect the role of museums as part of the service economy. He concurred with Bryant's (1988) argument that although museums are about real things, real sites, real objects, exhibitions, programs, etc., it is visitor engagement with these that creates the individual user experience.

Cohen et al. (2013) suggested that services are viewed as a major factor associated with the competitiveness and development of tourism as the world moves into the twenty-first century. The ability to enhance service quality is fundamentally important to the future sustainability of an attraction (Lu et al., 2015). Although tourism has the general characteristics of services, including heterogeneity, inseparability, perishability (Cowell, 1984) and intangibility (Frochot & Hughes, 2000), tourism also faces challenges of delivering satisfying experiences to tourists visiting heritage sites (including museums), because each site may have its individual or unique characteristics.

Only currently year there are research on economic impact of museum compare to previous research which focus on culture and education impact on museum. This is because of government policies on the creative industry and difficultly economic climate (TBR's Creative & Cultural Team, 2015). According to
Oxford Economics (2016) economic contributions from the museum are because of tourist expenditure and other three impacts which are output value added, income and employment.

The most notable example is the case in Spain, where Solomon R. Guggenheim Foundation's museum in Bilbao was opened in 1997 with the hope that it would help to reverse the industrial decay of the Basque city of Bilbao, and it succeeded in inducing significant economic activities. In fact, museums make a significant contribution to UK tourism, with eight of the top 10 UK visitor attractions in 2008 being museums and galleries. The heritage

tourism makes a contribution to the total output of the UK economy (in terms of GDP) of £7.4 billion per year.

The report claims that this is a bigger contribution than that of many other sectors of the economy, including advertising, film, and the car industry. This scale of activity supports an estimated 195,000 full-time-equivalent jobs. Once economic 'multiplier' effects are included, the GDP contribution of heritage tourism rises to £20.6 billion a year, supporting an around 466,000 jobs. 60% of heritage tourists are UK residents (Hull, 2011).

In Malaysia it Tourism Promotion Board (MTPB) announced that cultural and heritage tourism is a new segment that will promote Malaysia's tourism industry. (The Malay Mail Online, 2013). At last year's auction of art works, the gallery earned about RM 800, 000 in contribution to the economy. In future, MTPB will focus on contemporary visual art in Kuala Lumpur, Penang, Malacca, Alor Setar, Kota Kinabalu and Kuching. This shows that Malaysia is trying to attract culture and heritage tourists and will indirectly involve museums as an asset of tourism of the country.

In the Tenth Malaysia Plan 2011-2015 (10th MP), (Economic Planning Unit Prime Minister's Department, 2010) the subsector of culture, youth and sports were allocated about RM 321 million for programmes and projects under the policies of creative industry, *Muzium Negara*, visual art galleries and archives. However due of economic downturn, make the government to reduce the budget allocation to the tourism industry from RM 1.2 billion to RM 1.0 billion (Ministry of Finance Malaysia, 2016). As a result of these decisions the museums have to reduce management expenditure, development and information resources such as reduction in the number of artifacts, the number of conservation earnings and the number of temporary and special exhibits.

This affects indirectly to museums located under the Department of Museums Malaysia and other tourism-related activities for example hotel taxi drivers and other businesses. However the government is trying to provide other incentives to ensure the growth of the industry by raising the tax reduction rate for stage art activities, and the eVisa scheme developed into the Balkans and South Asia (Ministry of Finance Malaysia, 2016).

### *Development strategies for Muzium Negara*

It is understandable to take museum as one of the cultural institutions which has profound economic impact in the sense that it serves as a way to fuel the creative energy that has become such an integral part of modern lives, in addition to providing a boost to regional tourism. In particular, museums differ in their purposes, sizes and scopes. However, this situation may encourage further analyses by taking a localized approach to estimate the attributes belonging to a museum in developing an understanding of how the community perceives the level of existence of museums in their modern life.

People's enjoyment of culture through their intermittent visit to museums does not necessarily mean that they are interested enough to support the development of the cultural activities organised by museums. Therefore, it is important for museums to establish and retain their attractiveness in order to attract more visitors, create awareness among potential

visitors (Gustafsson & Ijla, 2017) and understand the motivation during the decision-making made by visitors in spending their time visiting the museums.

Furthermore, DEMOS stated that research or focus given to the art and culture accommodates producers more compared to the demands and feedback of local consumers (Holden, 2006). Meanwhile, in order to encourage museums to generate the positive income, the number of local and international visitors must be increased. The lack of preference to museums especially from local visitors has nonetheless affected museums' profit, and it becomes more difficult for museums to improve the conservation activities and collection to enrich the inherited items as well as in providing the useful information related to the knowledge of the country's culture.

The National Museum of Malaysia for instance, is a public museum which used to be the main destination on one time with the number of tourists reaching a total of 3 million a year in 70-80s (*Muzium Negara*, 2012). However, the number of visitors has undergone a significant decline of 60% percent in the 90s. This is because tourism places, such as parks, shopping malls and family entertainment centres, are all preferred by the users (Domestic Tourist Survey, 2012). Historical facts and information are also easily accessible with the growing access to the Internet, which renders museum visits to be increasingly irrelevant. Museum that opened in 1963 has the special design and security features of interest. It has a three-story structure of 109.7 meters long and 15.1 meters wide and 37.6 meters at the central point, which consists of four main galleries allotted to ethnology and natural history. Displays and exhibits in the museum focus on local history, culture and traditions, arts and crafts, economic activities, local flora and fauna, weapons and currency. This museum was considered a tourism attraction in Malaysia tour itinerary for foreign tourists. It shows the various parties trying its best to promote the museum. However, it can be a waste of resources if the museum is no value to visitors and it operating costs increasing annually.

The museum currently charges an entrance fee of RM 2.00 per adult of Malaysian citizen and RM 5.00 per adult for international visitors. It turns out that the fee entre for National Museum in Malaysia is lower compared to neighbouring countries i.e. Singapore (Free for citizen but $ S15 for noncitizen), Thailand (30 THB for citizen and 200 THB for noncitizen). Even the price for private culture museum of Malaysia is RM 14 - RM 20 for both citizen and noncitizen. By studying visitor preference on museums, previous paper suggesting improvements of museum services and facilities provided by management can increase demand for museum (Iskandar Hasan et al., 2016). Therefore, this objective paper is to examine the visitor's demand of the museum by giving value through entre fee to the service and facilities of The National Museum of Malaysia. Through economic methods there are several tools that can be used to provide culture value to the museum such as Travel Cost Method, Hedonic Pricing, Averting Behaviour, Market Prices Contingent Valuation and Choice Experiment

In this research, choice experiment approach will be used as it offers a practical way of understanding visitor preferences to cultural attractions and then to develop strategy that would transform the traditional visitors into more frequent consumers.

## Literature Review

### *Choice modelling as economic technique for museum*

The basic technique for economic valuation is cost-benefit analysis. The strategy here is to isolate particular values; determine some way to operationalise their measurement by means of proxies, simulation, or surveys; and, finally, to derive a value composite. The measurement compels the reduction of complex values to the common denominator of money. Economic valuation technique of non-market economics is used to inform projects, policies, and resource allocation, but this trend has not been widely experienced in cultural economics, especially in relation to the valuation of museums or galleries (Kinghorn & Willis, 2007). Economic valuation technique is estimated using the concept of willingness to pay (WTP), which represents the amount of money a consumer would pay to increase his or her level of welfare or to avoid the loss of it in relation to the consumption of cultural heritage (Sanz et al., 2003).

WTP is split into two categories, namely revealed preference techniques and stated preference techniques. Revealed preference techniques rely on observing the actual behaviour of visitors and include methods such as Hedonic Price (HP) and Travel Cost Method (TCM) (Bedate et al., 2004; Ruijgrok, 2006; Fonseca, 2010; Vicente and Frutos, 2011, and Brida et al. 2011).

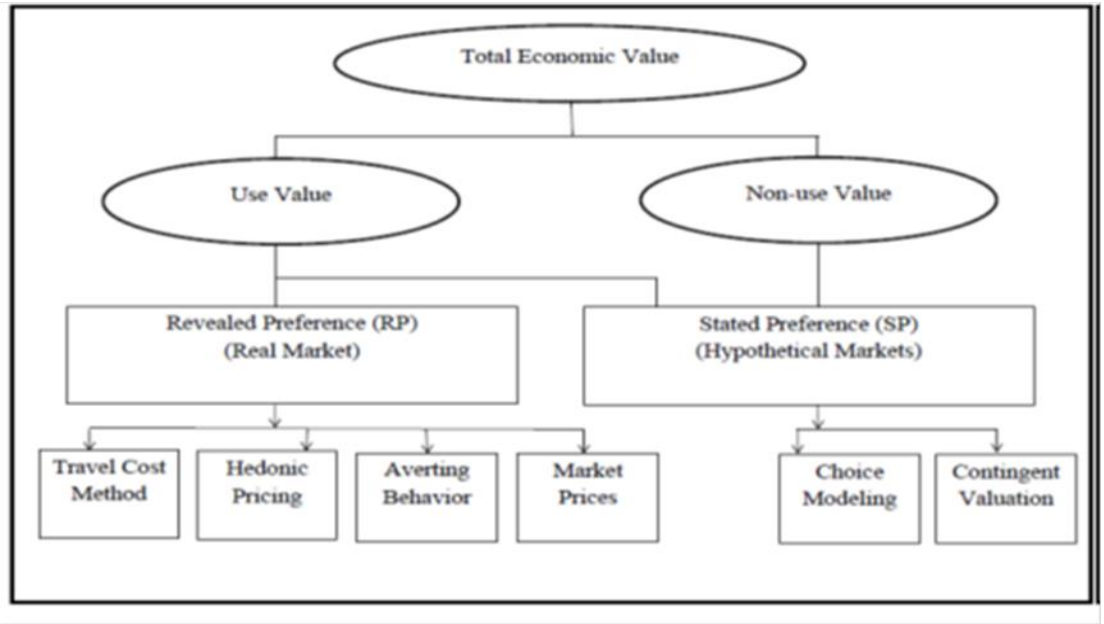


**Figure 2.5: economic valuation technique**
Source: Choi et al., (2010), (Modified from figure 1.4 of Bateman et al. (2002: p. 30)

Meanwhile, stated preference technique defines an individual by eliciting values directly from the individual through a survey. Kahn (2005) promotes the idea that this technique does not have to link to actual behaviour and directly ask respondents hypothetical questions. There are numerous stated preference techniques for non-market valuation, which include Contingent Rating, Contingent Ranking, Paired Comparisons, Contingent Valuation Method (CVM), and Choice Modelling (CM).

Numerous cultural heritage assets are often considered public goods since they are non-exclusive and non-rival. This means that nobody may be prevented from enjoying the good, and the consumption of such a good by any individual does not diminish other people's chances of consuming the same good. When these two conditions are not strictly proven to concur, we are faced with semi-public goods. In either case, consumers lack any incentives to pay for such goods, since if they do, they are aware that others who do not pay will also benefit, and that if they themselves do not pay, they cannot be prevented from enjoying the good. Moreover, there is no incentive to either provide or maintain these goods, since anybody who does is generating a value for which they will not be rewarded, and a value which is not adequately reflected through market prices.

Museums may particularly be considered as public or semi-public goods, since on many occasions they are excludible as a result of charging an entrance fee and their consumption is non-rival (except for specific cases in which a problem of congestion may exist). In these situations, and as we are dealing with non-market goods, economic valuation value such as CV, CM, TCM and Hedonic Price has proven use to value the museum. To date, there have been a large number of stated preferences applications to evaluate the economic impact of museums (e.g., Mazzanti, 2003; Sanz, et al., 2003; Bedate, et al., 2009; Colombino and Nene, 2009; Lampi and Orth 2009; Choi et al. 2010); however, only a few studies have adopted revealed preference analysis to provide an economic valuation of museums (Brida et al., 2011; Chen and Chen, 2016).

Choice Modelling (CM) can be used to estimate the value of a variety of goods such as recreation services and scenic beauty. The CM includes stated preference technique that is frequently employed in estimation of values for environmental trade off (Bennet and Blamey, 2001). This method is based on the idea that a good can be depicted by its attributes and the levels that it takes. Respondents will be given a set of choices based on the attributes of the subject. Respondents are presented with different descriptions of the subject, differentiated in their attributes and their levels, and they are asked to rank, then rate or choose their most preferred options (Lee et al. 2016). The method has its advantages since it offers a richer data set, benefits transfer potential, context flexibility, strategic bias reduction, and framing effect control (Do and Bennet, 2007). The results of using this method can be used to determine the amount of money that people are willing to pay to move on from status quo situation to other situations, which are defined by different combinations of attribute level (Viton, 2013). The CM includes choice experiments, contingent ranking, contingent rating, and paired comparison approaches.

Choice experiments (CE) have undergone considerable methodological development over the years. Applications in the leisure field have often been used in this development of CE. Leiber and Fesenmaier (1984) investigated tourists' choice of trails in the Chicago area; Haider and Ewing (1990) assessed the importance of destination characteristics in Caribbean holidays; whilst Adamowicz et al. (1997) explored the relative utilities of different attributes in moose hunt-ing. Urban tourist choices of activity packages have been investigated by Dellaert et al. (1995); and choice of theme parks, including seasonality effects was investigated by Kemperman et al. (2000) Lacher et al. (2016) study attempts to quantify tourists' choice for cultural tourism in South Carolina coast, United State. Meanwhile, Carole, Mélody, and Philippe (2016) used a choice experiments method to estimate

willingness to pay for the amenities which are produced jointly by commercial fishing; and choice of museums was explored by Stemerding et al. (1996).

Correspondingly, in a study conducted in Venice, Italy, Costa and Manente (1995) were the first to extend the discrete choice technique to the demand for purely heritage attractions. Other studies using the same methodology to evaluate heritage attractions include Mazzanti's (2001) study on Italian cultural heritage and Morey et al.'s (2002) study on Washington's marble monuments. Also, a recent study by Boxall et al. (2003) combining stated and revealed preference elicitation methods examined aboriginal artefacts in Canada, while Maddison and Foster (2003) examined congestion at the British Museum through a pairwise comparison framework.

By comparison, there are relatively few applications of CE to the analysis of the management of an individual event or museum. Morey and Rossmann (2003) used CE to value the preservation from air pollution (acid rain) of 100 historical marble statues in Washington DC, whilst Alberini and Longo (2003) estimated the value of regenerating the culturally and historically significant St Anne's Square in Belfast using building height, amount of open space, and distribution between residential and retail usage as the variable attributes. The results in the latter study showed that the attributes explained the respondents' choices (generally people preferred more open space and lower building heights), but contrary to economic theory, the sign on the price coefficient was positive and significant, which is not easily explained. Supposedly find negative the signs were as expected negative on price and positive on all other attributes (Chen and Chen, 2016).

Mazzanti (2003) valued various attributes of the Galleria Borghese Museum in Rome. The CE attributes were: admission charge (three levels), conservation activity (two levels), access policy (two levels) and additional services, including multi- media and audio visual services and temporary exhibitions (three levels). The respondents were asked to choose between two choice sets and a status-quo option. The results for the initial CLM were not significant. However, when the socioeconomic factors were included (by segmentation and interaction terms), the results somewhat improved.

According to Dellaert and Lindberg (2003), this model explains respondent preferences for a particular heritage attraction as a function of policy alternatives (product attributes), spatial characteristics, and the respondents' socio-demographic characteristics, or a combination of them all. Apostolakis and Jaffry (2005) similarly used a systematic heterogeneous characteristic of discrete choice modelling. The article evaluated tourist preferences for hypothetical product developments in the Heraklion Archaeological Museum and the Knossos Palace. The results confirm other research regarding the changing nature of tourism demand in the tourism industry in general (Poon 1994) and the need for a deeper understanding of tourist preferences regarding heritage resources (Mazzanti, 2003) in particular. In addition, the study also provides solutions to the alleviation of some of the negative impacts generated in heritage attractions as a result of increasing visitation levels (Garrod et al., 2002).

Meanwhile, Kinghorn and Willis (2007) applied CE technique to an art gallery setting to investigate and estimate the value visitors place on various attributes of galleries. The results showed that CE can be used to obtain estimation for visitor utility and satisfaction from various gallery layouts. The methodology thus has a potential use in the management of

galleries and museums. The tailoring of art galleries and museums acts to improve visitors' experience and to increase visitors' satisfaction is becoming increasingly important, as these cultural resources are the essential components of leisure and tourism markets.

Burton et al. (2009) conducted a study in two major museums in Australia to determine the usefulness of choice modelling in identifying features that matter to cultural consumers. The data were estimated by using multinomial logit (MNL). The results suggested that choice modelling has much to offer in relation to understanding the benefits people are seeking from a museum experience as well as offering strategic insight into potential collaborative ventures and recombination of existing museum products and services.

Via a choice modelling, Choi et al. (2010) examined the economic values of changing various services by Old Parliament House in Canberra (Australia), which is a museum of social and political history. They calculated that temporary exhibitions and events contribute between AU$17.0 million and AU$21.8 million to annual nationwide welfare. They also revealed that only some of the attributes are valued positively: extending the period of temporary exhibitions, hosting various events, and having 'shop and cafe' and 'fine dining'.

Chen and Chen (2016) explored tourist preference at two heritage places in Taiwan. The results which were located in Chihkan Tower and Anping Tree House indicated that provision of outdoor café and restaurant service, operating hours until evening, and entrance fee in heritage attractions exhibit a statistically significant effect on probability of visitation. In addition, the results from welfare effects demonstrate that tourists are willing to pay extra money to utilize more service facilities for heritage attractions.

Results of the study at the Nivola Museum in Orani, Italy are different from the previous study for visitor choice of museum. The empirical findings indicate that there is a positive willingness to pay to acquire the art collection under study and to provide for its protection and conservation but the provision of additional services or security systems does not impact their utility. However the opinion of this study in line with previous studies where they support the idea that identity adds economic value to cultural goods (Detotto, 2017).

Thus, this study conducts the surveys by using Choice Modelling (CM) to assess the demand and determine the willingness to pay for improved museum services for a sample of visitor in *Muzium Negara*. By applying this method to measure the willingness to pay (WTP), it reveals the level of consumer demand. The CM has been used to estimate the economic values for all types of cultural heritage services. In CM, the respondents will be given a series of choices about a respondent's preferred alternative towards the improvement of museum services in the state with the designation of attributes and attribute levels. Furthermore, the survey used for CM is similar to CVM questionnaire, but with different designation of WTP questions.

$$WTP=VG\beta1+ VP\beta2+ CFS\beta3+ ESC\beta4+ MAIS\beta5+ Si\beta6 + WAC\beta7+ ATTSER\beta8) + VINC\beta9 + EDU\ \beta10 + AGE\ \beta11 +GEN\beta12+ e \quad (1.1)$$

Where:

VG = Visitors' Guide
VP = Visitor Participation
CFS = Customer Feedback System

| | |
|---|---|
| ESC | = Exhibition Change |
| MAIS | = Multimedia Audio-Visual Interactive Service |
| SI | = Sign Interactive |
| WAC | = Web access about collections |
| VINC | = Visitor's monthly income expressed in Ringgit Malaysia |
| EDU | = Visitor education level |
| AGE | = Age respondent in years |
| GEN | = Gender of respondent |

***Choice experiment questionnaire design***

The most important part of a CE study is experimental design and questionnaire development. The experimental design and questionnaire development began by determining the attributes to be included in the data collection. According to Bateman et al. (2002), a CE study involves five important stages: selecting attributes, determining levels, choosing experimental design, constructing choice sets, and measuring preference.

***Selection of attributes and levels***

The significant products by which respondents consider when making decision in the selection of choices are the attributes. In this study if, visitor induced change in museum management, services and facilities, it can be more meaningful if it is represented by a set of attributes and the choices can be made by the respondents so they can reveal the preferences. Moreover, the choices can provide management, services and facilities utilities and policy makers with valuable information based on visitors' interest. The common design in the construction of CM method involves five stages such as selection of attributes, determination of levels, choice of experiment design, construction of choice sets, and measurement of preferences (Bateman et al., 2002).

The attributes, levels of the attributes, and the methods which explain the attributes are constructed through discussions with supervisors, expertise, and officers of *Muzium Negara*. Additionally, this study uses other sources from *Muzium Negara* reports, government statistics, brochures, museum information on the website, and the literature. The selection of attributes and levels should be related to the management condition, services and facilities in *Muzium Negara.* This is thus the main consideration in the study. The CM will be more effective by using focus group in the stage of selecting attributes and levels. However, it was difficult for the researchers to involve focus group, since the study was faced with budget and time constraints. Thus, some procedures were applied in order to overcome the constraints such as by considering experts' judgement in the related field.

The attributes and levels had gone through several changes before they were finally considered acceptable in the questionnaire. This study also conducted site visits several times to *Muzium Negara* and other museums in Malaysia. The site visits included face-to-face interviews with the officers from the Department of Management and Administration, the Department of Education and Regional Services, the Display Units and the Department of Research and Documentation from the relevant field in order to gather more information on the attributes and levels. The objectives and contributions of the study were discussed during the interview and meeting.

The final set of the selected attributes and their levels were decided after going through an agreed discussion and site visit. There were two blocks of category of choice that required the visitors to choose in the questionnaire, namely 1) management condition in *Muzium Negara* and 2) Facilties and Services in *Muzium Negara*. There were five categories of attributes to reveal the consumer's WTP and to explain their selected choices towards improvement in management as well as services and facilities in *Muzium Negara*.

The chosen attributes were museum information package, visitors' guide, visitors' participation, customer feedback system, and fee for management block. Meanwhile, the attributes for facilities and services block were exhibition setting change, multimedia audio-visual interactive service, sign interactive, web access about collections, and fee. These attributes also have their own levels, and the conditions of levels are different from one another as they elicit preference of visitors. Table 1.1 displays the chosen set of attributes and attribute levels to provide options in making decisions for change in the management, services and facilities in *Muzium Negara.*

**Table 1.1: List of Attributes the their levels selected for the study**

| **Attributes** | **Levels** | **Description** |
|---|---|---|
| *Muzium Negara* Management **Museum Information Package** | Very Informative and Attractive | There are very clear and interesting pieces of information to attract visitors to *Muzium Negara*. Visitors can find out the price, special artefact, current even, organizing time in museum, some activities that are attractive, cafes and souvenir shops. |
| | Medium Informative and Attractive | Moderate information and attraction inside the brochure and advertising. Visitors can find out the price, special artefact, current event, some activities that are attractive, cafes and souvenir shops. |
| | Basic Informative and Attractive | Basic information and attraction inside the brochure and advertising. Visitor can find out price, exhibition, galleries and common information about visiting museum. |
| Visitors' Guide | 2pm-4pm with Visitor Guide | Additional session time needed on 2pm-4pm other than the current time. |
| | 10am-12pm with the Visitor Guide | Additional session time needed on 10am-12pm other than the current time |
| | No Change | Maintain the current time of volunteer visitor guide at 10am-11pm |
| Visitor Participation | Regular | Activities being held at least 3 days a week including weekend. |
| | Occasional | Activities and live show that being held only on weekend. |
| | No Family Event | No activities and live show that being held at the moment. |

| | | |
|---|---|---|
| Customer Feedback System | Website Feedback Form | Visitors give feedback by answering online at the museum's website. |
| | Computerized Friendly Customer Feedback | Visitors give feedback by answering via computer in *Muzium Negara*. |
| | Manual Feedback Form | Visitors give feedback by answering on paper questionnaires placed near the information desk. |
| Fee | Increase 200% | Increase entrance fee charge higher than current level to 200%. |
| | Increase 150% | Increase entre fee charge higher than current level to 150% |
| | Increase 100% | Increase entrance fee charge higher than current level to 100%.. |

| Attributes | Attributes Levels | Description |
|---|---|---|
| ***Muzium Negara* Facilities and Services** Exhibition Change | Change after 12 month | Exhibition items and spaces being change after 12 months |
| | Change after 6 month | Exhibition items and spaces being change after 6 months |
| | No Change | Exhibition items and spaces being remain in the current condition |
| Multimedia Audio-Visual Interactive Service | High level compliance | Almost all exhibition spaces and areas surrounding the museum using the computer technology application and the suitable lighting. |
| | Moderate level compliance | Some part of exhibition spaces and areas surrounding museum using the computer technology application and the suitable lighting. |
| | Low level compliance | Only a small part of exhibition space and area surround museum using the computer technology application and the suitable lighting. |
| Sign Interactive | Complete Coverage | There will be interactive signage for every area in *Muzium Negara*. |
| | Partial Coverage | There will be interactive signage for some of part area in *Muzium Negara*. |
| | Limited Coverage | There are interactive signs just for small area in Muzium Negara. |
| Web access about collections | Many collection with adequate information | The entire collection of objects and artefacts can be accessed via the internet with diverse explanation and interesting for visitors to understand. |
| | Regular collection and common information | Part of collection of objects and artefacts can be accessed via the internet with a simple explanation. |
| | Less collection with less information | Little collection of objects and artefacts that can be accessed via the internet with very little explanation. |
| Fee | Increase 200% | Increase entre fee charge higher than current level to 200%. |
| | Increase 150% | Increase entre fee charge higher than current level to 150% |

| | | |
|---|---|---|
| | Increase 100% | Increase entre fee charge higher than current level to 100%. |
| | No Change | Maintain the current entre fee charge; RM 2 for adult Malaysia Citizen and RM 5 for adult foreigner. |

***Designing choice set, factorial design and questionnaire version***

The respondents were offered the choice sets for evaluation. Each choice set consisted of three elements such as alternatives, attributes, and their level. This study offered five choice sets for each block, and each choice set consisted of three alternatives or service options including status quo option. However, only choice set for fee consisted of four alternatives or service options including status quo option. The respondents selected status quo or current situation if they did not intend to have improvement or change of the service options offered. Thus, in the choice set, the respondents were required to select one option among the three or four alternatives. The respondents were not to be provided with lengthy, difficult and complex option (Mohd et al., 2008). It might take time and tend to make the respondents to discontinue answering the whole questionnaire. The respondents might respond to the questions lightly with little regard to the selection of the options. This might consequently affect the quality of the study.

The CM method consists of 'choice of experimental design' which is at the third stage in the designing method. The experimental design can be expressed by the number of attributes or the number of attributes levels. Therefore, it can be said that choice sets are generated from some factorial design. In Table 4.2, the attributes are assumed as discrete, and the factorial design in this study for each block is 3 x 3 x 3 x 3 x 3 x 4 = 972. Thus, there are 972 combinations derived from all five attributes and their levels from each block. The number of combinations makes it very difficult and impractical to evaluate the full factorial design. The respondents have to answer too many choices and useless conditions. A decision should be taken to use fractional design to overcome the problem. Fractional design is a subset from all possible combinations of the selected attribute levels. So, it can reduce choices offered to the respondents.

The researchers should acquire a design which is orthogonal and balanced in designing fractional factorial design (Huber and Zwerina, 1996). There is no correlation in the attribute levels, and it assumes they are independent in the orthogonal design. Addelman (1962), as cited by Huber and Zwerina (1996), pointed out orthogonally is satisfied when jointly any two levels of different attributes in a profile with frequencies are equal to the product of their marginal frequencies. After the orthogonal design process, there were 8 choices and it was still impractical to offer choices to the respondents. Then, some 'useless' and choice situations were dropped until there were only 8 reliable choices left. In the final questionnaire, it was decided that there would be only 5 choice sets to make it convenient and reliable for the respondents to answer the questionnaire.

During the interview, the respondents were told that changes in museum fee will affect their budget allocation for other expenditures too. Hence, they were required to choose the best option for changes in museum services based on their budget.

This study employed several statistical techniques to describe the sample and examine the proposed hypotheses. The collected data were entered and analysed in the Statistical Package

for the Social Science (SPSS) Version 21.0 for Windows, Amos (Analysis of Moment Structures) version 21 for Windows and LIMDEP, NLogit 4.0.

## Conclusion

It is difficult to value these cultural heritage goods since they are unpriced, and the consumption of the goods has 'public good' characteristics. Therefore, a whole and precise economic valuation of cultural heritage, particularly non-marketable goods, is required. Non-market goods may include both direct and indirect value (Kahn, 2005). Their economic value is defined as aggregate willingness to pay (WTP) or how much people are willing to pay for cultural heritage goods especially museums, since they are not subject to market price. In this study, if consumers are willing to pay a certain amount of money, it signifies that museums are valued. Then, it is possible to generate more income to maintain the operation and maintenance cost, and even to support the programme.

Thus, non-market valuation method is the only method of allocating values on cultural heritage goods. Nonmarket valuation is a method to estimate the value of goods and services which are not bought and sold in the markets, and it will determine a value for cultural heritage outputs. Cultural may be totally undervalued and decisions about their use may not precisely reveal their true value for society without these value estimations. Three major categories are normally used to measure the value of nonmarket goods, namely revealed preference approaches, stated preference technique, and benefit transfer. There are many economic that can be used to estimate the economic value of cultural heritage output, such as contingent valuation method, choice modelling, travel cost, benefit transfer method, conjoint analysis, and hedonic price.

Generally, stated preference technique is used to investigate issues associated with WTP. Thus, this concept paper is a study using Choice Modelling (CM) to assess the demand and determine the willingness to pay for improved museum services for a sample of visitors in *Muzium Negara*. By applying this method to measure the wiliness to pay (WTP), it reveals the level of consumer demand. The CM has been used to estimate economic values for all types of cultural heritage service. In CM, the respondents will be given a series of choices about a respondent's preferred alternative towards the improvement of museum services in the state with the designation of the attributes and the attribute levels. Furthermore, the survey used for CM is similar to CVM questionnaire, but with different designation of WTP questions.

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