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Service quality, visitor satisfaction and future behavior in the museum sector

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Abstract: *The present study investigates the factors that affect visitors' satisfaction and their future behavior. A survey based on the dimensions of SERVPERF among 632 visitors in two distinct in terms of atmosphere, exhibits and activities museums, the Archaeological Museum and the Museum for Science and Technology in Thessaloniki (Greece) provides the empirical evidence. The results indicate that the five dimensions of SERVPERF can successfully determine the degree of visitors' satisfaction and predict future behavior. Future behavior is often subject to visitors' place of residence. The type of museum is also a significant factor affecting satisfaction and future behavior. on and loyalty.*

Keywords: *Service Quality, Museums, Satisfaction, Future Behavior, SERVPERF*

JEL Classification: *L8, L15, L83*

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1 INTRODUCTION

Over the past few years there has been a considerable interest by both academics and practitioners in the museum sector. Museums a cornerstone of cultural inheritance, are also source of creativity capable of producing economic and technical innovation, furthering knowledge and understanding of arts and history, and developing viable opportunities in the future (Sepe & Di Trapani, 2010). If cultural inheritance can be considered an important factor of growth, it is imperative that it is preserved and transferred to

future generations in a manner comprehensible and acceptable to everyone. As is the case with any enterprise, a museum needs organization of its operation and a conscious and constant effort to make its service widely known and appreciated by the public as a source of competitive advantage (Kotler et al., 2008; Mensah & Mensah, 2018). In today's competitive environment, museums should determine specific goals and develop a marketing plan to enhance their attractiveness and increase the number visitors along with their revenue (Kotler et al., 2008). Within this setting, visitor satisfaction becomes of absolute importance

and is a significant asset in a museum's strategic development. The present study elaborates on the issue of visitor satisfaction and future behavior taking into consideration distinct museum settings, the Archaeological Museum and the Museum for Science and Technology in Thessaloniki (Greece).

2 LITERATURE REVIEW

2.1. Museum service quality

Service quality in museums is a complex concept linked to many aspects of the museum experience. It refers to the collection of exhibits as well as their presentation and includes the competence and expertise of the staff (Markovic et al., 2013). Rentscher & Gilmore (2002) claim that dimensions such as education, accessibility, communication, relevance and the frequency of temporary exhibitions are also important elements for the delivery of quality services. According to Negri et al. (2009), there are two approaches on how museum service quality should be defined and measured. In the first case, the issue is approached from the visitor's point of view, the so called "public quality of a museum" (Negri et al., 2009). The public quality of a museum is the extent to which it meets the needs and desires of visitors (Negri et al., 2009) and can be assessed by an evaluation of the difference between visitors' expectations and their perceptions of the services provided by the museum (Christou & Kassianidis, 2002; Maher et al., 2011; Chatzigeorgiou et al., 2016). The second approach defines and measures the professional quality of a museum (Pachucki, 2012) or as it is reported by Negri et al. (2009), the private quality. This kind of quality depends on the importance and value of the collections exhibited in the museum, the way they are preserved (Pachucki, 2012), the efficiency of their classification and cataloguing, and the staff's ability to provide information for the exhibits (Negri et al., 2009). If all these do not apply, visitors will not be able to enjoy their experience in a museum.

The most widely accepted method measuring service quality is SERVQUAL introduced by Parasuraman, Zeitham and Berry in 1985. SERVQUAL measures the gap between customers' expectations and their service perceptions on the basis of five dimensions: Tangibles, Reliability, Responsiveness, Assurance, and Empathy (Parasuraman et al., 1988). Many subsequent studies have examined the efficiency of the model in different sectors such as retail (Carman, 1990; Finn & Lamb, 1991), the dental sector (Carman, 1990), and hospitals (Babakus & Mangold, 1992; Vandamme & Leunis, 1993). Most of these studies resulted in modifications that were eventually implemented in a modified SERVQUAL model (Parasuraman et al., 1991). A number of studies questioned the usefulness of collecting data on customer expectations with a unanimous agreement that the predominant component of SERVQUAL is actual perception (Babakus & Boller, 1992; Boulding et al., 1993; Brown et al., 1993; Carman, 1990; Cronin & Taylor, 1992; 1994). As a follow-up to this criticism, Cronin & Taylor (1994) proposed a new service quality measurement tool based on SERVQUAL's logic. In line with the notion that only perceptions are significant in measuring quality, a new

model, SERVPERF was introduced. SERVPERF consists of the twenty-two (22) questions of SERVQUAL that refer to perception. Their model was tested in several industries like banking, fast food and dry-cleaning, to demonstrate the superiority of their scale over SERVQUAL (Babakus & Boller, 1992) both in terms of its predictive value and its ease of use. The present study adopts the SERVPERF model in order to provide evidence on the level of satisfaction and future behavior of visitors in the museum sector. It is thus the objective of the present study to (a) test the validity of the SERVPERF model and (b) provide an understanding of the drivers of customer satisfaction and future behavior in the museum sector. In this attempt emphasis is given on the type of museum as a distinctive factor affecting both satisfaction and future behavior.

2.2. Visitor satisfaction and future behavior

Customer satisfaction is important, especially in tourism services (Yüksel & Yüksel, 2002; Christou, 2006), as it can affect future behavior (Harrison & Shaw, 2004). Future behavior involves the concept of re-visit as well as word-of-mouth. Prior studies have attempted to clarify how satisfaction affects repeated visits and word-of-mouth. McLean (1994) and Bendall-Lyon & Powers (2004) agree that behavioral intentions are the result of overall satisfaction. Lau Pei & Badaruddin (2010) argued that the stronger the psychological benefits of their visit to the museum, the more positive their attitude towards the overall service quality is expected to be. Future behavior is also subject to the above factors.

2.3. Previous studies & Research Questions

SERVQUAL has been extensively used in research studies to evaluate the quality of museum services. Maher et al. (2011) examined the model's credibility in a small children's museum in the USA. Their results indicate that museums should invest in the dimension of empathy, as this is an important factor affecting visitors' participation in the museum experience. Nowaski (2005) used the model to assess the service quality of the National Museum in Poland looking into visitors' expectations, perceptions and satisfaction levels as well as the correlations between the dimensions of the model and visitors' overall satisfaction. Hui Ying & Chao Chien (2008) examined the service quality of the National Museum in Taiwan as well as the degree of visitors' satisfaction. An adjustment of the SERVQUAL model to cater for historic sites and museums is the HISTOQUAL model, developed by Frochot & Hughes (2000). Chen & Wan (2012) employed HISTOQUAL to examine the service quality provided by museums in Macao. Their results indicate that both foreign and local visitors had a good attitude towards museums, with the first group appearing more satisfied. Demographics, such as the level of visitor education, seemed to have an impact on their degree of satisfaction. Moreover, they concluded that visitor perception is subject to the type of the museum. Putra (2016) adopted a similar approach to his study at the Bandung Geology Museum in Indonesia. His study highlighted significant museum weaknesses, mainly concerning staff responsiveness and empathy. Lau Pei & Badaruddin (2010), employed SERVPERF in a pilot survey that examined the

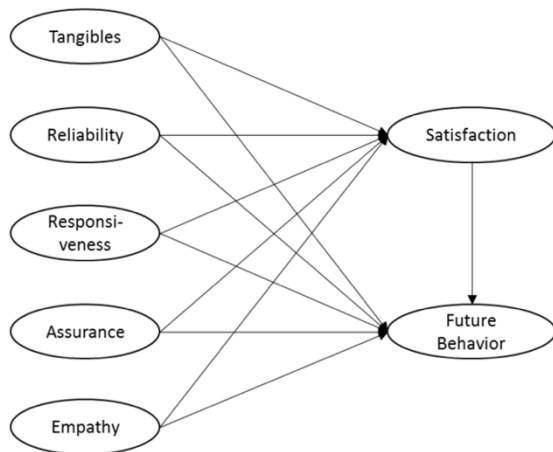
service quality of museums in Malaysia, through an assessment of visitors' perceptions, satisfaction and future behavior. A common denominator of the above studies is the general consensus and widespread acceptance of SERVPERF as an effective tool in the prediction of customer satisfaction and future behavior.

SERVPERF has been adopted for the purposes of the present study as an effective tool in capturing true quality in museums. The dimensions introduced by SERVPERF and the interactions addressed in the study are presented in Figure 1.

Based on the above analysis the study addresses four research questions.

- *Is visitors' satisfaction positively affected by (a) tangibles, (b) reliability, (c) responsiveness, (d) assurance, and (e) empathy of a museum environment?*
- *Is visitors' future behavior positively be affected by (a) tangibles, (b) reliability, (c) responsiveness, (d) assurance, and (e) empathy of a museum environment?*
- *Will visitors' satisfaction will have a positive effect on their future behavior?*
- *Is there a difference on visitor satisfaction and future behavior based on the type of the museum?*

Figure 1. Conceptual model



3 METHODOLOGY

A survey of visitors in two museums, the Archeological Museum and the Museum of Science & Technology in Thessaloniki, provide the empirical evidence of the study. The two museums were selected out of twenty-one (21) museums the city due to the great number of visitors they attract throughout the year and the very distinct and different style, themes and exhibits they display. The Archeological Museum, located in the city center includes artifacts dating from the Prehistoric era to the end of Antiquity. With eight (8) permanent and numerous temporary exhibitions throughout the year the museum attracts numerous visitors. Exhibitions are static and people have to follow a predetermined specific path that guides visitors through the museum. The museum of Science and Technology, on the other hand, is an educational foundation that promotes

technology and its main objective is to inform the public on the latest science and technological developments.

A self-administered questionnaire was administered to visitors in the museums. The first part of the questionnaire (SERVPERF) consists of twenty-one items and refers to respondents' perception of the museum: tangibles ($\alpha=.667$), reliability ($\alpha=.756$), responsiveness ($\alpha=.774$), assurance ($\alpha=.744$), and empathy ($\alpha=.863$; Cronin & Taylor, 1994). A nine (9) item scale was used to address visitors' satisfaction ($\alpha=.836$; Black, 2005), six (6) item scale was used to measure visitors' future behavior ($\alpha=.905$; Zeithaml et al, 1996). Sample demographics (gender, age, level of education, employment status, annual income and place of residence) were used to assess visitors' profile. All scales were measured on a five-point Likert scale, ranging from "strongly disagree" (1) to "strongly agree" (5) to assess the visitors' answers.

Twenty-two (22) field researchers, were trained on sampling techniques and the process of approaching and interviewing visitors. Visitors were approached at the foyer of each museum and were asked to participate in the survey only if they had completed their visit. Data was collected between the 23rd and 28th of October 2017, in the Archeological Museum and on the 4th, 5th and 11th of November 2017 in Museum of Science and Technology. A total of 796 questionnaires were administered (632 valid responses – 320 in Archeological Museum and 312 in Science and Technology). Identical time intervals throughout the day were kept in both museums.

Table 1. Visitor demographics

| Demographics | Archeological Museum (N = 320) | | Noesis (N = 312) | |
|--------------------------------|--------------------------------|---------|------------------|---------|
| | Frequency | Percent | Frequency | Percent |
| Gender | | | | |
| Women | 162 | 50.6% | 165 | 52.9% |
| Men | 158 | 49.4% | 147 | 47.1% |
| Age group | | | | |
| 16-24 | 37 | 11.6% | 46 | 14.7% |
| 25-34 | 49 | 15.3% | 67 | 21.5% |
| 35-44 | 53 | 16.6% | 132 | 42.3% |
| 45-54 | 73 | 22.8% | 49 | 15.7% |
| 55-64 | 51 | 15.9% | 13 | 4.2% |
| >65 | 57 | 17.8% | 5 | 1.6% |
| Level of Education | | | | |
| Primary / Secondary school | 29 | 9.1% | 34 | 10.9% |
| Student | 27 | 8.4% | 43 | 13.8% |
| Bachelor degree | 131 | 40.9% | 118 | 37.8% |
| Master or Doctor degree | 109 | 34.1% | 105 | 33.7% |
| Other | 24 | 7.5% | 12 | 3.8% |
| Employment Status | | | | |
| Employee of the private sector | 93 | 29.1% | 108 | 34.6% |
| Civil servant | 61 | 19.1% | 37 | 11.9% |
| Self-employed | 43 | 13.4% | 94 | 30.1% |
| Retired | 74 | 23.1% | 10 | 3.2% |
| Student | 31 | 9.7% | 42 | 13.5% |
| Currently not working | 17 | 5.3% | 21 | 6.7% |
| Other | 1 | .3% | - | - |
| Annual Income | | | | |
| No income | 41 | 12.8% | 64 | 20.5% |
| Up to 10,000€ | 32 | 10.0% | 60 | 19.2% |
| 10,001-15,000€ | 39 | 12.2% | 79 | 25.3% |
| 15,001-20,000€ | 29 | 9.1% | 56 | 17.9% |
| > 20,001€ | 179 | 55.9% | 53 | 17.0% |
| Place of Residence | | | | |
| Greece | 86 | 26.9% | 311 | 99.7% |
| USA | 42 | 13.1% | | |
| Germany | 40 | 12.5% | | |
| France | 33 | 10.3% | | |
| UK | 24 | 7.5% | | |
| Canada | 11 | 3.4% | | |
| Cyprus | 11 | 3.4% | | |
| Italy | 10 | 3.1% | | |
| the Netherlands | 8 | 2.5% | | |
| Switzerland | 7 | 2.2% | 1 | .3% |
| Sweden | 7 | 2.2% | | |
| Belgium | 6 | 1.9% | | |
| Other | 35 | 11% | | |

4 RESULTS AND DISCUSSION

The demographic characteristics of visitors in each museum are summarized in Table 1. The proportion of males to females was quite similar in both museums (51.1% vs 48.9%). Almost 50% of respondents belonged to the 35 - 44 and 45 - 54 years age groups. Over 70% of respondents had a bachelor's, master's or doctoral degree and the majority of them were private sector employees or self-employed. In terms of their annual income, 37.0% of participants earned over 20.000€ per annum and 18 per cent ranged between 10.000€ to 15.000€ a year. Participants in the Archaeological Museum originated from 30 countries (26.9% were Greeks). Most visitors came from the United States (13.1%), Germany (12.5%), France (10.3%) and England (7.5%). In contrast, visitors in the Science and Technology Museum were in their vast majority Greek (99.7%).

5 FINDINGS

Descriptive statistics, reliabilities (Cronbach's alpha) and inter-correlations (Spearman's rho) are illustrated in Table 2. For visitors of both museums, there is a positive moderate statistically significant correlation of the five dimensions of SERVPERF, satisfaction, and future behavior. IBM SPSS Amos 22.0 was used for a multi-group analysis. Confirmatory factor analysis indicated a seven-factor model with an acceptable model fit ($\chi^2(371) = 1100.83, p < 0.01, CFI = .934, TLI = .923, IFI = .935, RMSEA = .056$). Convergent validity analysis indicated that all standardized coefficients were statistically significant (ranged from .52 to .95).

Table 2. Means, standard deviations, Chronbach's alpha and correlations

| | M | D | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---------------------------|------|-----|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| 1. Tangibles | 4.28 | .62 | $\alpha=.667$ | .398*** | .393*** | .373*** | .237*** | .386*** | .471*** |
| 2. Reliability | 4.01 | .60 | .305*** | $\alpha=.756$ | .575*** | .559*** | .455*** | .522*** | .525*** |
| 3. Responsiveness | 4.08 | .61 | .321*** | .538*** | $\alpha=.774$ | .734*** | .527*** | .577*** | .559*** |
| 4. Assurance | 4.38 | .58 | .355*** | .425*** | .605*** | $\alpha=.744$ | .525*** | .614*** | .610*** |
| 5. Empathy | 3.47 | .79 | .282*** | .300*** | .515*** | .455*** | $\alpha=.863$ | .515*** | .445*** |
| 6. Satisfaction | 4.08 | .61 | .433*** | .384*** | .539*** | .560*** | .445*** | $\alpha=.836$ | .651*** |
| 7. Future Behavior | 4.39 | .58 | .362*** | .456*** | .395*** | .438*** | .337*** | .629*** | $\alpha=.905$ |

Note. ***p < .001; M – mean; SD – standard deviation; Inter-correlations (Spearman's rho) for visitors of Archaeological Museum (N=320) are represented below the main diagonal; Inter-correlations for visitors of Science & Technology Museum (N=312) are represented above the main diagonal; in the main diagonal Cronbach's alpha for each measurement is represented

Structural equation model analysis revealed a non-significant difference between the unconstrained and the constrained model ($\Delta\chi^2(18, N=632) = 74.131, p < .001$), signifying that the two groups are different at the model level (Byrne, 2010). All effects, apart from that of Empathy to Satisfaction (t (18) = 1.698, p = .09), Tangibles to Future Behavior (t (18) = 3.652, p < .001), and Satisfaction to Future Behavior (t (18) = 4.592, p < .001), indicated a statistically significant difference between the two museums (Table 3).

As far as Archeological Museum of Thessaloniki is concerned, tangibles ($\beta = .247, p < .001$) and assurance ($\beta = .529, p = .002$) have a statistically significant positive effect on satisfaction, while reliability ($\beta = .191, p = .011$) and satisfaction ($\beta = .978, p < .001$) have a statistically significant effect on future behavior. As far as the Science Museum is

concerned, tangibles ($\beta = .236, p = .042$) and empathy ($\beta = .252, p = .026$) have a statistically significant positive effect on satisfaction, while reliability ($\beta = .327, p < .001$) and satisfaction ($\beta = .302, p < .001$) have a statistically positive effect on future behavior once again. Responsiveness seems to have a statistically insignificant effect on satisfaction and future behavior for both museums.

Table 3. Path analysis results

| Path | Archaeological Museum of Thessaloniki | | Thessaloniki Science Center and Technology Museum - Noesis | | Path difference's significance |
|----------------------------------|---------------------------------------|----------------------|--|---------------------|--------------------------------|
| | β (S.E.) | t-value | β (S.E.) | t-value | |
| Tangibles → Satisfaction | .247 (.06) | 4.016*** | .236 (.12) | 2.036* | t(18)=.084, NS |
| Reliability → Satisfaction | .088(.08) | 1.133 ^{NS} | .018 (.15) | .124 ^{NS} | t(18)=.01, NS |
| Responsiveness → Satisfaction | .035 (.12) | .28 ^{NS} | -.267 (.46) | -.584 ^{NS} | t(18)=.646, NS |
| Assurance → Satisfaction | .529 (.17) | 3.071** | 1.095 (.73) | 1.51 ^{NS} | t(18)=.769, NS |
| Empathy → Satisfaction | .036 (.06) | .605 ^{NS} | .252 (.11) | 2.219* | t(18)=1.698, p=.09 |
| Tangibles → Future Behavior | -.085 (.07) | -1.314 ^{NS} | .327 (.09) | 3.519*** | t(18)=3.652, p<.001 |
| Reliability → Future Behavior | .191 (.08) | 2.555* | .085 (.10) | .834 ^{NS} | t(18)=.842, NS |
| Responsiveness → Future Behavior | -.039 (.12) | -.337 ^{NS} | -.294 (.34) | -.877 ^{NS} | t(18)=.726, NS |
| Assurance → Future Behavior | -.149 (.17) | -.871 ^{NS} | .575 (.55) | 1.039 ^{NS} | t(18)=1.266, NS |
| Empathy → Future Behavior | .003 (.06) | .052 ^{NS} | .012 (.08) | .149 ^{NS} | t(18)=.093, NS |
| Satisfaction → Future Behavior | .978 (.12) | 8.254*** | .302 (.09) | 3.503*** | t(18)=4.592, p<.001 |

Note. *p<.05, **p<.01, ***p<.001, NS: non-significant

6 CONCLUSION AND IMPLICATIONS

The objective of the present paper was to test the applicability of SERVPERF in the Greek museum sector and compare the effectiveness of the dimensions of SERVPERF in predicting visitors' satisfaction and their future behavior. The analysis is based on data collected in two distinctively different types of museum, the Archeological museum which displays exhibits of historical interest with limited interaction among visitors and the exhibits and the Science and Technology Museum that promotes visitors active role in the exhibition. The correlation analysis for the Archaeological museum indicates that there is a moderate positive correlation between all dimensions of SERVPERF with the visitors satisfaction. However, path analysis with structural equation modeling revealed only a statistically significant positive effect of tangibles and assurance on satisfaction. Similarly, the correlation analysis for Science and Technology Museum shows that there is a moderate positive correlation between all SERVPERF dimensions with satisfaction, while path analysis with structural equation modeling revealed this time a statistically significant positive effect of tangibles and empathy on visitors' satisfaction. These findings are somewhat consistent with prior studies in museums and support the significance of service quality on satisfaction (Nowaski, 2005; Chami & Kaminyoge, 2019). Besides, many of the items that are examined through the 5 dimensions, such as the building, the relaxation areas, the behavior of the staff, the exhibition and the exhibits, can have an impact on the overall visitor satisfaction (Harrison & Shaw, 2004; Huo & Miller, 2007). Furthermore, the correlation analysis for both museums shows that there is a moderate positive correlation between all SERVPERF dimensions with future behavior. Path analysis with structural equation modeling revealed a statistically significant positive effect only of tangibles for Science and Technology Museum and reliability for the Archaeological museum on visitors' satisfaction.

As previously noted, the level of satisfaction depends on the quality of services. Many surveys concluded that the better the quality of services, the greater the satisfaction will be and

the greater the satisfaction, the greater the intention to revisit and recommend the museum to others (Simpson, 2000; Kuo, 2003; Huo & Miller, 2007; Nella & Christou, 2016). Therefore, satisfaction serves as a link between service quality and future behavior. Both the correlation and the path analysis in this study verify the claim. However, it is noteworthy that the positive effect of satisfaction on future behavior was statistically significantly greater for the Archaeological Museum than the Science Museum ($t(18) = 4.592, p < .001$).

Visitors in the two museums seem to be significantly different. Visitors in the Archaeological Museum aged between 45 and 65+ years of age, while the majority of visitors in Science and Technology Museum aged between 25 and 44. Only 1.6% of visitors were over 65. This could be attributed to the fact that the Science Museum focuses on technology, a factor clearly of interest to younger people, who are clearly more familiar and competent with new technologies. At the same time, exhibitions are presented in an interactive amusing manner, attracting younger generations, children and families with young children.

In our study, the majority of visitors in both museums were of a higher education with either a bachelor's, postgraduate or doctorate degree. For museums this could signify that they have to cater for the needs of an informed, potentially demanding and more difficult to satisfy audience. This could potentially explain why tangibles, assurance and empathy have been determined as significant factors affecting satisfaction in the two museums as visitors are looking for a better atmosphere reliability of information and a more personalized experience within the museum,

The demographic data also indicate a lack of foreign visitors at the Science and Technology Museum. This could be attributed to the fact that technology is of no interest to foreign visitors in a country not known for its technological advancements but rather for its long ancient culture and history.

On a final note, this study has specific limitations, that could provide avenues for future research. The empirical evidence is based on a convenience sample obtained from only two museums. Even though they are the most popular and frequently visited museums in the city, a wider sample from most museums in the city would help validate our findings and support the predictability of SERVPERF. Future research could also use a different model and various types of museums (open air archaeological sites etc.) in order to test the reliability of the information and analysis provided by SERVPERF.

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