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Validating the Scale for Service Quality Measurement: Empirical Evidence from the Acropolis Museum

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ABSTRACT

The aim of this empirical research is to validate the HISTOQUAL scale, which is a modification of SERVQUAL applied to museum service quality and more specifically on the Acropolis Museum. A secondary purpose is to assess quality related to the museum quality dimensions and thus, to provide insights on museum management to improve service quality. In the current paper a self-administered survey was conducted, and 315 local visitors of the Acropolis Museum participated. To measure service quality, the construct of HISTOQUAL was used and modified to apply to the Greek culture. The basic measurement methodology incorporated the collection of data regarding service quality perceptions and expectations. A resulting GAP analysis between perceptions and expectations for every item of quality measurement provided managerial insights on the specific areas of improvement. HISTOQUAL dimensions of responsiveness, tangibles, communication, consumables were validated, illustrating strong internal reliability. However, empathy was not supported for the sample tested. GAP analysis unveiled poor quality related to the items of empathy, communication, and responsiveness for the Acropolis Museum. Whereas the strong points for the referring museum regarded tangibles and consumables. The construct of HISTOQUAL suggests a valid and reliable research instrument to measure service quality dimensions for archeological museums.

KEYWORDS: Cultural heritage, HISTOQUAL, Service Quality, GAP analysis.

Introduction

The main types of tourism with regards to possible destinations include beaches, areas of natural beauty, towns and cities, winter sports retreats and other destinations depending on the purpose of travel (Cortés-Jiménez and Blake, 2011). Among the sub-types of other destinations, heritage, or culture destinations are the most prominent (Park et al., 2019). Museums showcase a significant share of cultural heritage and culture destinations and thus become a choice for both domestic and international tourists (Park et al., 2019). Thus, museums exist as a strategic area for the growth and development of culture destinations, given that they reinforce the sense of identity relating to the past. This is important in turn, for the preservation of cultural heritage in such destinations, and for the preservation of a national heritage overall.

By ‘services’, we define the experience that consumers as individuals have as they interact with processes, people, places, as well as physical evidence (see Parasuraman et al., 1994).

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Businesses, organizations and even persons may influence the experience of patrons and/or other persons towards them, in the way that these interactions (with customers, employees, local communities and so on) are managed. Compared to the expected outcome, these interactions may have a positive or negative impact to attitudes being formed. The assessment of service quality focuses on sensed discrepancies between services expected, and those actually received (Williams, 1998). A museum is certainly a complex organization; and given the intense competition among so many destinations for luring tourists, museum management indeed requires a focus on customer-oriented models so as to positively impact visitor satisfaction and destination experience (Kowalska and Ostręga, 2020). Therefore, museums need to measure customer satisfaction as an important outcome of customer experience and, more precisely, to measure and manage expectations, experiences, and attitudes reflecting service quality (Daskalaki et al., 2020).

A literature review suggests that there is a plethora of research concerned with measuring service quality in museum settings. SERVQUAL, complete with its main variations and adjustments, is the basic model, or construct, for evaluating perceptions and expectations regarding the various dimensions impacting overall service quality (Kowalska and Ostręga, 2020; Maher et al., 2011; Sheng and Chen, 2011; Chen and Shi, 2008; Nowacki, 2005). SERVQUAL's original 22-item construct, along with its basic modifications, is arguably the foundation a conceptual framework towards measuring and improving service quality in museums. This current study will employ two different groups of variables that deal with service expectations and service performance, with attention given to how the gap between these variables may point to confirmation or disconfirmation when it comes the overall service quality (Frochot and Hughes, 2000).

While many indicators and standards have been established, the debate on what is the most appropriate method to measure service performance remains vigorous today (Frochot and Hughes, 2000; Gounaris, 2005; Park and Yi, 2017). Numerous aspects have been developed so far, with an emphasis on the positive effects of arrival experience, of shaping visitors' initial mood, or of physical evidence and settings such as display, layout, entertainment value, as well as concerning the importance of communication between museums' participants during service production (aka *servuction*), guests and frontline personnel (Yang and Jeon, 2013).

To establish a conceptual framework for this research, we will first proceed to consider some fundamental dimensions defining one's experience in a museum setting; personnel competence, presentation of exhibits, and empathy (Markovic et al., 2013). These refer to the SERVQUAL model of 24 items, then adjusted to fit to a heritage context (known as HISTOQUAL), itself incorporating five dimensions: responsiveness, tangibles, communication, consumables, and empathy (Frochot and Hughes, 2000). Responsiveness reflects staff competence, and recognizing customer needs (Yang and Jeon, 2013). Tangibles, or physical evidence, refer both to the internal and external property environment and also include factors such as authenticity, cleanliness, and attractiveness (Frochot and Hughes, 2000). By 'communication' what is essentially described is quality of information in terms of detail and precision (Frochot and Hughes, 2000). And by 'consumables', we understand supplementary services, including shops and restaurants (Yang and Jeon, 2013). Last but not least, 'empathy' points to a customization of services, to cater for the special needs of children and those less-able individuals (Yang and Jeon, 2013).

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For the purposes of this current study, the HISTOQUAL model developed by Frochot and Hughes (2000) is adjusted to fit the circumstances and the environment (cultural and conceptual) of the Acropolis Museum (Athens, Greece). More specifically, the adjusted HISTOQUAL model aims to facilitate a measurement of visitors' expectations and perceptions as they relate to service quality in the archaeological exhibition that is contained in the Acropolis Museum. In addition, expectations and perceptions will be measured under the prism of gap analysis and variance analysis.

A basic objective here is to critically assess visitors' expectations and perceptions on service quality in the context of the Acropolis Museum, using an adjusted version of the HISTOQUAL model. Employing a quantitative approach in terms of survey methodology, the researchers proceed to explore, as their primary goal, the level of visitor expectations and perceptions in the Acropolis Museum. A secondary objective of this study is to conduct a gap analysis, comparing scores between perceived service performance and expected service quality when it comes to key dimensions of service quality – and also, to prove whether there these gaps are statistically significant.

Literature Review

According to services marketing theory, 'service' is a holistic experience, deriving from the interaction of participants (personnel and customers), processes and tangibles (Parasuraman et al. 1988, 1991). Proceeding from this definition, the quality of visitors' experience in museum settings plays a major role in customer satisfaction, as well as customers' future behavior (Sheng and Chen, 2011). In the case when something changes from what is listed above, the quality of one's experience is anticipated to change also. This is important, since visitors have specific expectations prior to a museum visit, and so either confirmation or disconfirmation must occur if, respectively, service performance meets, or fails to meet, these expectations (Parasuraman et al. 1988, 1991). In this sense, service quality measurement is a cornerstone of success when it comes to providing services. More so in a museum environment, especially considering how museums' overall service encompasses all aspects of a definition of services marketing. Parasuraman et al. (1988, 1991) were the first researchers to create a complete model of service quality measurement. More specifically, they developed the Service Quality scale; one that purports to measure the importance of the gap between expectations and perceptions of service quality. Parasuraman et al. (ibid.) employed a mixed method approach, with qualitative research helping unveil specific items. On a later stage, these items were tested and verified through a survey method. The authors arrived at a multi-dimensional construct, labelled SERVQUAL and consisting of five sub-scales: reliability, responsiveness, tangibles, assurance and empathy. A total of 22 likert items were suggested for use, for the measurement of both expectations and perceptions on these dimensions. The SERVQUAL scale is among the most widely used, and has been verified and further adjusted by numerous researchers. This includes several studies that involved museums (Nowacki, 2005; Chen and Shi, 2008; Sheng and Chen, 2011; Maher et al., 2011; Kowalska and Ostręga, 2020).

However, there has also been considerate criticism of the SERVQUAL model by many authors, among them Williams (1998), Gounaris (2005), Kashif et al. (2016) and Park and Yi (2017). Most of this criticism is based on an understanding that service concepts differ in various settings. In addition, there is also the idea that service performance itself suggests a better method of service quality measurement, one that is more usable and includes fewer

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items (Buttle, 1996). In this sense, alternative models of service quality measurement have emerged – such as SERVPERF, INDSERV and others (Cronin and Taylor, 1992; Gounaris, 2005).

As far as service quality measurement in museum settings is concerned, of course any single individual's experience is very complex, and depends primarily on the context and particularity of service delivery. According to Gilmore and Rentschler (2002), the most influential dimensions of service performance in museums are accessibility, education, relevance, communication and the frequency of special exhibitions. On the other hand,Phaswana-Mafuya and Haydam (2005) have stressed the importance of safety, accessibility, providing information, and cleanliness on service performance, in the context of museums especially. Progressing with this detailed investigation of studies on museum service quality measurement, we can confirm that the majority of them so far, have implicated SERVQUAL and its modifications. Their aim, is invariably usability and relevance for the museum setting. Chen and Shi (2008), for instance, have measured and examined service quality effects on customer satisfaction at the National Museum of Prehistory. They have indeed stressed that experience in museums critically depends on customer satisfaction, and the latter is affected by the gap between expectations and perceptions. Educational entertainment, tangibility, care, convenience and responsiveness and assurance were suggested to have affected visitor satisfaction, significantly, and directly (Chen and Shi, 2008). In a later study, Sheng and Chen (2011) uncovered basic dimensions for museum visitors' experience expectations, through content analysis derived from visitors' comments in diaries, following museum visits. The researchers were helped in this way to detail the construct of experience expectations. With subsequent content analysis, Sheng and Chen (2011) conducted a survey in which museum visitors participated. Their survey applied factor analysis with the purpose of indicating the basic groups of experience expectations. In the event, the prominent experience expectations in museums included cultural entertainment, having fun, historical reminiscing about history, personal identification as well as escapism (Sheng and Chen, 2011). And so this research by Sheng and Chen (2011) is naturally deemed to be quite important, especially in the way it has illustrated how significant experience expectations in museums can be in terms of their impact on consumer satisfaction; as well as in terms of realizing how crucial a factor towards success is to indeed manage effectively these experiences when it comes to museum settings.

Further SERQUAL modifications, focused on the museum environment, were proposed by Maher et al. (2011); their research explored the dimensions of service quality measurement in children museums, and effects in repeat visits. Thus, according to Maher et al. (2011), six factors were verified in the specialized setting of children's museum compared to the original SERVQUAL. Empathy proved to be a critical factor for success, and the factor with the highest impact when it came to intentions to revisit the museum. The key influence of the Maher et al. (2011) study was on museum marketing practitioners, who could arguably use this modified version to measure perceptions and expectations and in their efforts to close the gaps on all six dimensions, and on empathy in particular. Kowalska and Ostręga (2020) made further progress in considering service quality measurement in museums that were located in post-industrial areas. Addressing the key question as to whether the expectations of the museum visitors were met, here the basic SERVQUAL dimensions of tangibles, reliability, responsiveness, assurance, and empathy, were indeed all verified. There were seemed to be no major gaps in these items. This indicating high quality in service in the museums tested by

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Kowalska and Ostrega.

As far as other service quality models are concerned, we found the SERVPERF model to be well-utilized when it comes to museum settings. This model has attracted less criticism and is deemed to be more practical, indeed resulting in limited construct error (Cronin and Taylor, 1992). Mey and Mohamed (2010) investigated the reliability of an integrated model when measuring Service Quality, visitor satisfaction and behavioral intentions, in museums in Malaysia. They applied a modified ServPerf methodology, using a 35-item instrument which considered perceptions only,on various dimensions to measure museum quality. They eventually arrived at an integrated model, one which illustrated valid paths between service quality perceptions, overall service quality, consumer satisfaction and behavioral intentions. In addition, Mey and Mohamed (2010) verified the existence of six service quality dimensions: museums' accessibility, information sources, quality of displays and exhibitions, customer services as well as amenities and facilities. Daskalaki et al. (2020) studied the effects of service quality dimensions on customer satisfaction, and on customers' future behavior, also according tothe type of the museum. Foer Daskalaki et al. (2020), perceptions on service quality such as assurance, tangibles and empathy, exert positive and direct effects on customer's satisfaction. The authors managed to show the importance of satisfaction, tangibles and reliability on favorable future behavior, behavior depends on visitor profile, of course. Daskalaki et al. (2020) were the first to integrate service quality measurement, customer satisfaction and future behavior in a path analysis, using Structural Equation Modelling. Their research further stressed the need to apply total quality management in order to impact satisfaction and behavior.

With regards to the most specialized modifications of SERVQUAL for the museum context, Frochot and Hughes (2000) developed and validated a new construct, which they labelled "HISTOQUAL"; their study has argued that frontline personnel's efficiency and their capacity to recognize visitors' needs should be extensively explored. In addition, the property environment; both exterior and interior, including authenticity, cleanliness as well overall attractiveness of the museum, are elements best summed up by the 'tangibles' dimension. An additional dimension of HISTOQUAL, as developed by Frochot and Hughes (2000) has to do with communication, as it relates to both quantity and quality of the information delivered to visitors. Peripheral services such as operation of restaurants and shops are still included in the dimension of 'consumables', which is suggested to has an overall impact on service quality in museums. Last but not least, a willingness to help, and showing concern for special groups of visitors, such as less able individuals and children, can also play a crucial role when it comes to visitors' museum experience, and to perceptions of service quality overall. Markovic et al. (2013) examined expectations and perceptions concerning service quality dimensions in museums, and their respective differences, further analyzing the key dimensions of service quality. Expectations at the museum they focused on in their research were shown to be higher than perceptions on quality. Dimensions that were verified indeed varied between expectations and perceptions. More specifically, visitors' expectations were reflected by three dimensions: tangibles and communication, empathy, and convenience. On the other hand, perceptions on quality concerned five dimensions, labelled as tangibles, accessibility, exhibition presentation, empathy, and communication. Thus, Markovic et al. (2013) pointed at specific service quality dimensions that required improvements and others that were strong assets of the value that the museum offered to its visitors. Putra (2016) further stressed the need to measure service quality in museums via a gap analysis – between perceptions and

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expectations. This research employed a modified survey construct of HISTOQUAL at the Museum Geology Bandung and attempted to answer the key question of how to measure the gap in five dimensions as they were proposed by Frochot and Hughes (2000). More specifically, the Putra study implemented measurement on responsiveness, communication, empathy, consumables, and tangibles. Results indicated specific areas that could be improved in achieving favorable consumer behavior. In addition, Putra's study emphasized the need to periodically measure the gap of service quality by utilizing gap analysis and HISTOQUAL. Benjawan et al. (2018) utilized a modified version of HISTOQUAL to measure service quality in World Heritage City Museum, in northern Thailand, and further incorporated aspects of HISTOQUAL towards an innovative management model. Benjawan et al. (2018) applied a delphi approach, which included qualitative research involving experts/museum practitioners; they also conducted a survey on museum visitors. This research again confirmed HISTOQUAL as a valuable tool for management: both in terms of measuring service quality and when it came to applying corrective actions needed for improvement.

Research Method

Sample and procedure

Quantitative research; proceeding through a self-administered survey and realizing a "positivist" approach, with use of adjusted HISTOQUAL items as developed by Frochot and Hughes (2000). The survey was conducted in Athens, Greece, between May and June 2020. The sample consisted of visitors to the Acropolis Museum, since they were thought to have a clear purpose of visiting this specific museum; and for that reason, they come to the venue with specific expectations as regards service quality and the reflecting experience. In this sense, visitors to the Acropolis museum arguably are ideal participants when it comes to them reporting perceptions on their experience. Strict covid protocols were followed for the survey, where 553 visitors over 17 years old comprised the sample. All participants were all approached as they exited the Acropolis Museum, in an effort to increase comprehension and minimize possible errors in measurement. Parents or guardians of children had to consent with regards to the participation of underage visitors in the survey. 315 visitors agreed to participate in total, resulting in 304 usable responses. The response rate was at 57%.

Measurement

The survey questionnaire, being the key instrument for this research was effectively designed with the purpose of collecting data that would help the researchers meet the stated objectives. In order to accomplish this, demographic, likert and rating scale questions were preferred. The questionnaire comprised three parts: a. demographics, b. dimensions of museum service quality, and, c. attitudes and intentions. In addition, 5-point likert scales were used to collect data on expectations (ranging from 1: strongly disagree to 5: strongly agree) and rating questions (ranging from 1: not at all important to 5: very important) used to measure perceptions, as well as to reduce measurement error. The main body of the research instrument (part b.) concerns the 24 items of HISTOQUAL model, and deals with perceptions of the service received in the Acropolis Museum (24 items) versus the expectations on the corresponding dimensions of service quality the museum provided (24 items). These items were formulated in the Greek language , so as to be comprehended well by local visitors. The basic subscales of HISTOQUAL that were used included responsiveness, tangibles, communication, consumables, and empathy (Frochot and Hughes,

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2000). These dimensions were all well established and erified at museum settings in earlier studies by Putra (2016), Markovic et al. (2013), Yang and Jeon (2013) and Maher et al. (2011); all these studies have demonstrated the reliability and usability of these dimensions.

Data preparation & Analysis

The resulting data was collected, cleaned, coded and prepared for statistical analysis in an SPSS version 20 database. Exploratory analysis as well as descriptive analysis were used to understand the data. The primary method for data analysis consisted of gap score analysis between perceived and expected service quality on every dimension listed by the HISTOQUAL model (Putra, 2016). Using t-values, the authors either rejected or accepted the null hypothesis that there is no significant difference between perceived and expected service quality. Significant differences would then be analyzed in a managerial manner in order to propose adjustments, improvements, and/or the application of new practices.

Construct Reliability

Among the tests most essential to performed before we could proceed to the gap analysis, had to do with the composite consistency of HISTOQUAL items. Cronbach's Alpha was the basic indicator used to measure construct reliability within the groups generated from a Confirmatory Factor Analysis (Netemeyer, et. al, 2003). According to Brunner and Süß (2005), construct reliability equals to the overall variance in proportion to the total variance within the scale. Fornell and Larcker 1981 regarded construct reliability as an "indicator of the shared variance among the observed variables used as an indicator of a latent construct". According to the Fornell and Larcker, a threshold of 0.70 in terms of Cronbach's Alpha assures the internal reliability for every construct extracted from factor analysis. Our research supported the existence of four HISTOQUAL's dimensions – labelled as 'tangibles', 'responsiveness', 'communication', and 'consumables'. The intragroup items of these dimensions revealed a great deal of internal consistency and reliability (Cronbach's Alpha > 0.7), whereas empathy was not supported by the survey conducted the Acropolis Museum. Table 1, below, illustrates the CFA process, along with the Reliability Analysis for every dimension of HISTOQUAL.

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Table 1: Confirmatory Factor Analysis and Factors extracted

Component Matrix: Factors loaded and Construct Reliability for HISTOQUAL					
Items Loaded	Tangibles	Responsiveness	Communication	Empathy	Consumables
EQ_1_General cleanliness	0,72				
EQ_2_Staff Appearance	0,80				
EQ_3_Comfortable resting area	0,79				
EQ_4_Direction signs to show around the	0,75				
EQ_5_Attractive exhibitions	0,60				
EQ_6_Up-to date equipment, including d	0,58				
EQ_7_Helpful and Courteous staff		0,80			
EQ_8_Level of tolerance during peak hour		0,72			
EQ_9_Well informed staff		0,75			
EQ_10_Convenient operating hour		0,66			
EQ_11_Good Consulting Services		0,80			
EQ_12_Feel Welcome by staff		0,76			
EQ_13_Direction signs are clear			0,69		
EQ_14_Foreign language leaflet			0,76		
EQ_15_Free maps provided			0,67		
EQ_21_Free and good wi-fi connection			0,61		
EQ_22_Digital Communication through website			0,81		
EQ_23_Communication through News-letters			0,77		
EQ_24_Digital Communication through Digital Social Networks and e			0,70		
EQ_16_Facilities for Children				0,73	
PQ_17_Disable visitors needs are accommodate				0,73	
EQ_18_Products sold are interesting					0,86
EQ_19_Products are priced reasonably					0,82
EQ_20_Variety of Food and Beverage are sold					0,79
ALPHA CRONBACH	**0,8**	**0,83**	**0,83**	**0,53**	**0,76**

Findings and Discussion

This section focuses on the results emerging from descriptive statistics for expectations and perceptions when it comes to service quality dimensions. Further gap analysis as well as a sample t-test then seeks to prove whether differences between perceptions and expectations for every item measured are statistically significantly different from zero.

Participants' Profile

The survey participants who visited the Acropolis Museum belonged to various gender, age, professional and educational groups. More specifically, 66.8% of the total sample were women, whereas 33.2% stated male as their gender. This reflects the fact that there is a higher interest among women towards cultural heritage services, and also suggests that women have more leisure time, during which they decide to visit museums with friends and children. Therefore, women are found to be more involved in this specific service category. With respect to respondents' age, the sample of this survey fully reflected national statistics for Greece. More specifically, 24.7% were aged between 17-29 years old, 18.1% stated they belonged to the 30-39 age group, and 26.3% to the age group of 40-49. Older participants where almost divided into 15.1% for the 50-59 age group, whereas participants 60 or older were 15.8% of the sample. Concerning professional status, 20.7% stated they were

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pupils/students, 6.6% identified themselves as unemployed, 23.4% were state employees, 18.4% worked at the private sector. Teachers in particular formed 10.9% of the sample, as 9.2% were pensioners, whereas free-lancers made for the remaining 10.9% of the sample.

When it came to the respondents' educational status, it should be emphasized that the highest percentage of visitors to the Acropolis Museum's has a Higher Education experience. More specifically, 53% of the sample were undergraduate students, whereas a 32.2% stated they held a postgraduate, or other higher degree. Primary education was represented by the 0.3% of the sample, and the remaining 14.5% stated primary education. Responding to the question as to whether they were accompanied in their visit to the museum, only 12.5% stated they were alone, whereas the mode value was a 'family visit' (49.7%). This reflects a need for more empathy towards families, children, or less able persons. A visit with friends was measured to be 28.3% of the total sample, and the remaining 9.5% could be categorized as a tourist visit.

Measuring expectations and perceptions

The measuring of expectations was the first research objective. Highest expectations diverted on Responsiveness (mean = 4.2), Communication (mean = 4.1), Empathy (mean =4.0), Tangibles (mean = 4.00) and Consumables (mean = 3.6 – see also Table 2, below). These means statistics represent the visitor's preferences on various dimensions that concern service quality. Respondents indicated higher sensitivity on interaction with the staff, including hospitality (mean =4.5), ability to provide information (mean =4.4), and customer orientation along with consulting services (mean =4.1) and convenience and tolerance during peak hour (3.8). These findings do correspond to ones in studies by Maher et al. (2011) and Yang and Jeon (2013).

When it comes to Communication, this entailed both traditional as well as digital means of communication. Visitors to the Acropolis Museum focused on this aspect – both traditional and digital. Availability of leaflets in foreign languages (mean =4.4) and existence of clear direction signs (mean =4.3) were deemed to be the most expected qualities, in terms of communication. On the other hand, digital communication through the website was highly valued by visitors to the Acropolis Museum (mean =4.3), along with provision of free maps (mean =4.0). Last but not least with regards to digital communication: social media presence (mean =3.9), newsletters (mean =3.9), along with wi-fi connectivity (mean =3.7) should not be neglected by Acropolis Museum management.

As for tangibles, or the physical evidence provided to visitors, here participants did express high expectations on general cleanliness (mean =4.5), attractive exhibitions (mean =4.1), staff appearance (mean =4.0), the existence of comfortable resting areas (mean =3.9) and direction signs within museum property (mean =3.9). In addition, use of up-to-date equipment, including digital tools, was deemed as important for the visitor's overall experience (mean =3.7). A further area where high expectations for archeological museums were recorded, involved the dimension of empathy. That is, museum visitors indicated high expectations when it came to accommodations offered to disabled visitors (mean =4.5) while expectations on facilities for children, as recorded in the survey, were generally average (mean =3.5). These findings are in line with Putra (2016) and Markovic et al. (2013).

The dimension of consumables, on the other hand, was found to be the least important dimension of service quality in an archaeological museum context. Reasonable prices were

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highly expected nevertheless (mean =4.0). The remaining aspects of the consumables dimension were of moderate importance in this survey. For instance, products were expected to be interesting, and the same goes for variety when it came to food and beverages available, since both areas received as average rate (mean =3.5 and 3.3 respectively). These results follow patterns similar to those discussed in the Putra study (2016).

As far as perceptions on service quality dimensions are concerned, the highest performance rates achieved at the Acropolis Museum were on Tangibles (mean =4.0), Responsiveness (mean =3.9) and Communication (mean =3.7). However, performance on Consumables and Empathy was average (mean =3.5 and 3.5 respectively). These findings indicate that the core product of the Acropolis Museum, that is, the attractiveness of the exhibition and property itself, is well managed: given that there is a plethora of rare archeological exhibitions regarded as well displayed (mean =4.5), combined with general cleanliness (mean =4.5) and good staff appearance (mean =4.1). There was a high performance on Responsiveness as well, illustrated by the fact that interaction with staff was considered to be very good in terms of hospitality (mean =4.1), operating working hours were felt to be convenient (mean =4.0), information was accessible through the museum staff (mean =3.9), along with level of tolerance during peak hour and consulting services provided (mean =3.8). These findings do align with those attained by Markovic et al. (2013).

Perceptions on Communication had a high rate, given that foreign language leaflets were provided (mean =4.0) and direction signs were clear (mean =4.0). Digital communication via the website was equally rated high (mean =3.9). However, other means of digital communication were average, for instance, communication in the form of newsletters (mean =3.6), or through social media (mean =3.5). The wi-fi provided at the Acropolis museum also scored low (mean =3.4). Some other aspects of average performance on communication had to do with the provision of free maps inside the Acropolis Museum (mean =3.5). As for perceptions on empathy, this was indeed the weakest point for the museum emerging from the survey, when considered along with communication; in the sense that the needs of children and less-able visitors were not generally accommodated (mean =3.1 and 3.8 respectively). Last but not least, perceptions of performance on consumables were on average, or below average. These findings are in line with Yang and Jeon (2013) and Frochot and Hughes (2000).

Table 2 below summarizes the ratings on perceptions and expectations on five-scale likert type variables, as presented above. According to Allen and Seaman (2007), as soon as interval scales are utilized in the rating process, then any interpretation should occur in accordance with them. Mean scores of 2.33 and lower represent a low level of ratings, whereas the average category should lie between 2.34 and 3.67. Mean scores of more than 3.68 can be interpreted as being of high significance.

Table 2: Summarized Ratings on Perceptions and Expectations for the Acropolis Museum

Dimension	**Perceptions**	**Criteria Rating**	**Expectations**	**Criteria Rating**	**Diffs (P-E)**	**Ranking**
Tangibles	4,0	High	4,0	High	**0,0**	1
Consumables	3,5	Average	3,6	Average	**0,0**	2
Responsivene	3,9	High	4,2	High	**-0,3**	3

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Communication	3,7	High	4,1	High	**-0,4**	4
Empathy	3,5	Average	4,0	High	**-0,5**	5

GAP Analysis

With the purpose of suggesting improvements and adjustments on service quality management for the Acropolis museum, there was a GAP analysis between perceptions on actual service performance and expectations for every item included in HISTOQUAL. We posited that the mean gap for every item used was statistically different from zero. Therefore, in the case the value α is significantly different from 0 ($p<0.05$), we then accept that there is a gap indeed in Service Quality, and adjustments need to be made (Putra, 2016). For this reason, one sample t-test –a parametric test– was employed in verifying gaps. As a first finding, visitors' expectations for the Acropolis Museum were slightly higher than perceptions (-0.2, $p<0.05$); in theory, the higher the perceptions of service performance as compared to expectations, the better one's experience and satisfaction will be (Parasuraman et al., 1991). As a general conclusion therefore, managers in this museum need to further concern themselves with dimensions that have the highest gaps to fill.

With respect to tangibles, the mean difference between perceptions and expectations was zero. However, on various items we encountered mixed gaps. More specifically, there were negative gaps in experiences that had to do with Direction signs within the property (-0.3, $p<0.05$); the existence of comfortable resting areas (-0.2, $p<0,05$); and regarding how up-to date the equipment used was (-0.1, $p<0.05$). The museum's strongest point with regards to tangibles had to do with how attractive exhibitions were, as well as with staff's overall appearance; since this was evident on gap means of Table 3 (0.2 and 0.4 respectively, $p<0.05$). As for general cleanliness, there was no statistical difference in the Gap Mean was observed. Thus, perceptions were equal to expectations –which is satisfactory as well. In this sense, management perhaps should proceed with making adjustments regarding direction signs, move towards increasing comfortable resting areas, as well as procuring up-to-date equipment, in order to fill this gap and to best satisfy visitors.

Concerning Responsiveness, defined as the capability of the service production system of reacting positively and quickly, the Acropolis Museum has generally underperformed (Gap mean = -0.3). The basic areas of gaps as observed in this research had to do with the staff being knowledgeable (Gap mean -0.5, $p<0.5$), their being hospitable (-0.4, $p<0.05$), the helpfulness and courtesy exhibited by staff (-0.4, $p<0.05$) as well as with regards to consulting services provided (-0.3, $p<0.05$). When it came to responsiveness during peak hours in particular, no significant gap (-0.1, $p>0.05$) was noticed. On the other hand, the Acropolis Museum did perform quite well when it came to convenient operating hours (0.2, $p<0.05$). Therefore, the museum's managers need to introduce staff training programs towards improve customer care, the experience of customers –and the handling of complaints, when these exist. What is more, managers may also add procedures, or improve existing ones. This may result in service delivery that is quick and reliable, whilst improving service performance at the same time.

As far as Communication goes, we included items that purported to measure service quality for both traditional and digital means of communication. In every item for which quality was

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measured, the Acropolis Museum underperformed (general gap mean = -0.4). To begin with, there was a significant Perception-Expectations gap when it came to free maps provided by museum's employees (-0.5, $p<0.05$), as well as with respect to digital communication through the museum website (-0.4, $p<0.05$). Foreign language leaflets and (lack of) clear direction signs suggested further areas of improvement, since there was a significant gap there as well (-0.4, $p<0.05$). Digital communication through various social media channels, newsletters and adequate wi-fi connection were other additional gaps that pointed to needed improvement (0.3, 0.2 and 0.2 respectively, $p<0.05$). In this sense, we could argue that digital means of communication may be additionally utilized in improving how the Acropolis Museum communicates with its visitors.

In terms of empathy, visitors to the museum expected more procedures in place, and care for, disabled visitors. They also expected facilities that would cater for the needs of children – compared to perceived performance (gap means -0.7 and -0.4 respectively, $p<0.05$). By taking better care of these groups of visitors, museum managers could potentially improve customer experience, especially given that such individuals are routinely accompanied by other visitors which. As Frochot and Hughes (2000) have already argued, this could result in better mood and overall satisfaction. Finally, gaps on consumables were mixed. That is, products marketed to visitors were priced higher than expected (-1.0, $p<0.05$). On the other hand, visitors were satisfied by the variety of food and beverage sold, and the products that could be purchased on the premises (0.4 and 0.5, $p<0.05$). Table 3 and Figure 1 illustrate the basic descriptive statistics employed for this study, along with the GAP analysis and the significance ascribed to every item. It should also be noted that a Spider chart on HISTOQUAL items (Figure 2) offers a helpful visualization on HISTOQUAL GAPs that could prove valuable when it comes to decision making.

Table 3: GAP analysis for Acropolis Museum in HISTOQUAL dimensions

Dimensions	Items	Perceptions		Expectations		Gap Mean	t-value	Sig.
		Mean	SD	Mean	SD	(P-E)		
Tangibles	General cleanliness	4,5	0,8	4,5	0,6	0,0	0,324	N/S
	Staff Appearance	4,1	1,0	4,0	0,7	0,2	2,571	**
	Comfortable resting area	3,7	1,0	3,9	0,9	-0,2	-3,248	**
	Direction signs within property	3,6	1,0	3,9	1,0	-0,3	-3,755	**
	Attractive exhibitions	4,5	1,0	4,1	0,6	0,4	6,95	**
	Up-to date equipment, including digital tools	3,6	1,1	3,7	0,9	-0,1	-1,959	**
Responsiveness	Helpful and Courteous staff	4,1	0,8	4,5	0,7	-0,4	-7,241	**
	Level of tolerance during peak hour	3,8	1,0	3,9	0,8	-0,1	-1,824	N/S
	Well informed staff	3,9	0,9	4,4	0,8	-0,5	-7,883	**
	Convenient operating hour	4,0	1,0	3,8	0,8	0,2	2,506	**
	Good Consulting Services	3,8	0,9	4,1	0,8	-0,3	-4,597	**
	Feel Welcome by staff	4,0	0,7	4,5	0,7	-0,4	-8,137	**
Communication	Direction signs are clear	4,0	0,9	4,3	0,8	-0,4	-5,795	**
	Foreign language leaflet	4,0	0,9	4,4	0,9	-0,4	-6,735	**
	Free maps provided	3,5	1,0	4,0	1,0	-0,5	-6,555	**
	Free and good wi-fi connection	3,4	1,2	3,7	0,9	-0,2	-3,423	**
	Digital Communication through website	3,9	0,9	4,3	0,8	-0,4	-7,572	**
	Communication through News-letters	3,6	1,0	3,9	0,8	-0,2	-4,144	**
	Digital Communication through Social	3,5	1,1	3,9	0,8	-0,3	-5,135	**
Empathy	Facilities for Children	3,1	1,1	3,5	0,9	-0,4	-5,859	**
	Disable visitors needs are accommodate	3,8	0,8	4,5	0,8	-0,7	-11,086	**
Consumables	Products sold are interesting	3,9	1,1	3,5	0,8	0,5	7,238	**
	Products are priced reasonably	3,0	1,1	4,0	0,9	-1,0	-11,578	**
	Variety of Food and Beverage are sold	3,6	1,1	3,3	0,9	0,4	5,639	**
Mean for 24 items		**3,8**		**4,0**		**-0,2**		

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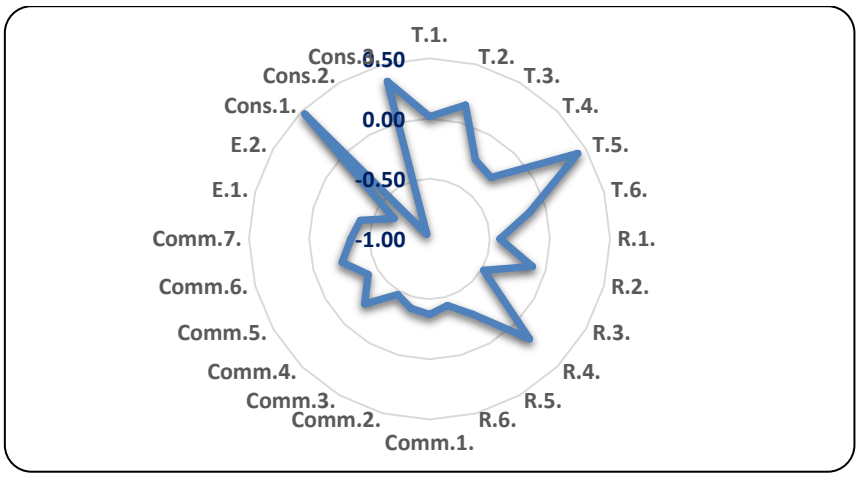
Figure 1: Spider chart on HISTOQUAL items



Conclusions, Implications & Limitations

Conclusions

This study, focusing on expectations and perceptions on service quality, has attempted to measure the five dimensions in applying the HISTOQUAL approach at the Acropolis Museum. The dimensions concerned were Tangibles, Consumables, Responsiveness, Communication and Empathy. However, limited reliability for the empathy scale meant that only four dimensions could be confirmed, out of the original five. In descending order, visitors at the Acropolis museum had the highest expectations when it came to responsiveness, communication and tangibles – whereas expectations on consumables were average (see Table 3, section III.B). And the highest perceptions on quality – again, in descending order shorting by mean values – concerned Tangibles, Responsiveness and Communication. Perceptions on Consumables however, were average. These findings remain consistent with those in Putra (2016) and Markovic et al. (2013) studies.

Further GAP analysis was applied with purpose of examining whether the gaps between expectations and perceptions (negative or positive) on every item for quality measured were statistically significant and different from zero. Results seemed to indicate no significant gap on general cleanliness and level of tolerance during peak hour. For the remaining HISTOQUAL items, the gaps (negative or positive) were indeed significant, and evidencing in more detail those areas where the Acropolis Museum over- or under-performed. In general, the Acropolis Museum met (or exceeded) visitors' expectations on tangibles and consumables. However, these dimensions were not the highest ones in terms of means. The researchers were presented with a considerate, negative gap regarding responsiveness and communication (see Table 3), since the Acropolis Museum's management seemed to mismatch the importance of visitors' expectations on responsiveness and communication (both traditional and digital). These findings are consistent with ones by Putra (2016), Markovic et al. (2013) and Yang and Jeon (2013). Lastly, even though the empathy scale was not verified, a large gap was indeed observed when it came to the services provided to less able individuals, and children – an aspect that is indeed important for visitors of cultural heritage sites. This finding was diverged from the Frochot and Hughes (2000), Sheng and Chen (2011) and Markovic et al. (2013) studies.

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Implications

This research has attempted to illustrate the HISTOQUAL scale as a valuable and reliable measurement method of service quality in museums. Moreover, it has successfully showed the criticalness of each service quality dimension in terms of both visitor expectations and perceptions. The Acropolis Museum for instance, mismatched the importance of responsiveness and communication. Even though the museum was quite successful when it came tangibles, which represent the core product for a museum (i.e. interesting exhibitions, modern equipment and cleanliness), focusing on core product is not effective when it comes to museum services management (Putra, 2016). In a realm of cultural heritage, experiences that have to do with responsiveness and communication and more specifically, with augmenting of services, hospitality and communication did prove to be as important dimensions as core product and tangibles (see Maher et al., 2011; Daskalaki et al., 2020; Kowalska and Ostręga, 2020). The latter provides clear direction for museum managers to adopt a more customer-centric philosophy and clearer organizational culture, since consumers tend to assess not only what they get, but how they get it (Benjawan et al., 2018). In this sense, functional quality is as important as technical quality.

Limitations & Future research

The basic limitations of this research can be traced to the method that was utilized. More specifically, a positivist approach was followed, reflected mainly by the use of a survey. Despite the fact that a quantitative approach has specific qualities (for instance, valid and strict statistics), it still lacks qualitative findings, and further information that includes sentiments – something that is important also in an area such as that of services marketing and heritage tourism (Sheng and Chen, 2011). In future research, it is highly recommended qualitative data derived from visitors, experts and managers be used, and to triangulate this date with quantitative figures.

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