

APPLICATION OF ECOSERV MODEL IN SERVICE QUALITY MEASUREMENT: CASE STUDY OF NATIONAL PARKS IN CROATIA

Iva Valcic 
Suzana Markovic¹ 
Jelena Kljaic Sebrek² 

DOI: <https://doi.org/10.31410/ERAZ.S.P.2020.109>

Abstract: *Service quality plays an important role in improving competitiveness across tourism sectors. In this context, there is a need to gain a better understanding of service quality in the growing segment of ecotourism. This study aims to measure service quality perceptions of visitors of Croatian national parks and identify its key dimensions by using a modified ECOSERV model. Data were collected using a self-administered questionnaire. Descriptive statistics and exploratory factor analysis were used to analyse the data. Six dimensions that seem to best explain perceived service quality in national parks were identified. The results of the study could be relevant for both academics and management active in the area of ecotourism and national parks.*

Keywords: *ECOSERV, Service quality, Perceptions, Ecotourism, Factor analysis.*

1. INTRODUCTION

The concept of service quality and its implications have been a topic of research interest for several decades. Literature suggests that high levels of service quality result in many advantages for organisations, such as customer satisfaction and loyalty, increased profitability, improved business performance and lower costs (Seth et al., 2005).

Service quality is often operationalised as a multi-dimensional concept, although the dimensions of service quality may be dependent on the type of services being examined (Babakus and Boller, 1992). Therefore, it is important to determine the specific factors that define service quality in the area of interest. Furthermore, much of the scientific work places the users' perspective at the core of the service quality assessment, often measured through service quality perceptions.

Like many other service-oriented industries, tourism has recognised service quality as a critical factor in its success (Fick and Ritchie, 1991). Numerous studies on service quality measurement in different tourism-related sectors have been carried out on the basis of the widely used SERVQUAL instrument, such as the hotel industry (Juwaheer, 2004; Marković and Raspor, 2010; Shafiq et al., 2019), historic houses and museums (Frochot and Hughes, 2000; Marković et al., 2013), restaurants (Bojanic and Rosen, 1994; Marković et al., 2010), rural tourism (Loureiro and González, 2009; Kljaic Šebrek, 2020), health tourism (Marković et al., 2014), hostels (Brochado et al., 2015), and the wine tourism experience (Haverila et al., 2020). The results can contribute to the view that service quality dimensions depend on the type of service offered, and can vary across different tourism sectors.

¹ Faculty of Tourism and Hospitality Management, Primorska 42, p.p. 97, 51410 Opatija, Croatia

² WYG Consulting Ltd.

Against this background, this paper focuses on service quality in the sector of ecotourism. The paper aims to measure service quality perceptions of visitors of Croatian national parks and to identify its key dimensions by using a modified ECOSERV model. The following sections present the literature review, methodology, study findings, discussion and conclusion.

2. LITERATURE REVIEW

Ever since the research on service quality gained momentum in the 1980s (Lovelock, 1983; Grönroos, 1984; Parasuraman et al., 1985), an increasing number of articles has been published on the concept of service quality, its definition, characteristics and methods of measurement. However, even after several decades of research, there is still no single, comprehensive and universally accepted definition of service quality. To a large degree, this is due to the nature of services itself. There are several unique characteristics associated with services: intangibility, heterogeneity, inseparability and perishability. These characteristics imply that service quality is an elusive and abstract construct that is more difficult to define and measure than product quality (Parasuraman et al., 1985).

The Nordic and American schools are often considered as the two key schools of thought on service quality. The latter has provided the SERVQUAL model (Parasuraman et al., 1985, 1988, 1991) which is one of the most prominent models in the field up to date. On the basis of the disconfirmation paradigm, Parasuraman et al. (1988) have proposed that service quality can be measured by identifying the gaps between customer's expectations and perceptions of service performance. The discrepancy between the expected and perceived service indicates the level of service quality, with a higher score representing a higher level of service. Originating from 10 initially conceptualised dimensions, the final SERVQUAL scale consisted of 22 paired items to measure expectations and perceptions across five distinct dimensions: *reliability, assurance, empathy, responsiveness and tangibles*. The sound and stable psychometric properties of the scale have been established based on data from four different industries. As noted by its authors, SERVQUAL serves as a skeleton which, when necessary, can be adapted to specific research needs.

Since its publication, the SERVQUAL scale has been widely used and adapted to a variety of service environments. In addition to tourism, it was used in industries such as healthcare, banking, airlines, public transportation, education and others. Despite the wide use, the SERVQUAL model has also been subject to scholarly criticism at both theoretical and operational level (for a full review and critique, consult Buttle, 1996) and alternative measurements have been proposed. For instance, Cronin and Taylor (1992) offered an alternative method of operationalising service quality. Their SERVPERF model is based on a perceptions-only measure of service quality, an approach followed by some other authors as well. The debate about service quality measurement is still ongoing in the literature, with the choice of the measurement being mostly governed by the aim of the individual research.

With regard to ecotourism, there is a general agreement in the literature that it is a growing sector of tourism, although the statistical data differ from source to source (Fennell, 2020). It could be argued that this, in part, is owed to the concept being elusive of a universally accepted definition. According to the International Ecotourism Society (2015), ecotourism is defined as "responsible travel to natural areas that conserves the environment, sustains the well-being of the local people, and involves interpretation and education". The World Tourism Organization has defined five main characteristics of ecotourism, such as the motivation of tourists being the

observation and appreciation of nature and the traditional cultures prevailing in natural areas, the inclusion of educational and interpretation features, as well as the minimisation of negative impacts upon the natural and socio-cultural environment, to name a few. Despite many definitions and differently described principles of ecotourism, Blamey (2011) suggests that the essence of the concept is nature based, environmentally educated, and sustainably managed.

Services provided in the ecotourism sector should be in accordance with the abovementioned ecotourism characteristics and guiding principles. In order to measure service quality expectations in ecotourism, Khan (2003) developed ECOSERV, a modified SERVQUAL model. The ECOSERV scale includes 30 items with some of them being adapted or added to emphasize the environmental and cultural issues. The study confirmed ECOSERV's validity and reliability and resulted in six dimensions:

- *eco-tangibles*: physical facilities and equipment that are safe and appropriate to the environment;
- *tangibles*: material and appearance of the personnel that reflects local influence;
- *reliability*: ability to perform the promised service dependably and accurately;
- *responsiveness*: willingness to help customers and provide prompt service;
- *assurance*: knowledge and courtesy of the employees and their ability to convey trust and confidence, and provide necessary information; and
- *empathy*: caring, individualized attention the firm provides its customers.

However, based on a review of the available literature, there is scope to include additional items into the ECOSERV model, as also suggested by the model's author herself. Yusof et al. (2014) make a more general suggestion to strengthen the element of sustainability in service quality measurement in tourism and which should also not be overlooked in ecotourism. Ban and Ramsaran (2016) propose to introduce new items to the ECOSERV model, for example covering aspects of learning and education.

Therefore, this study proposes additional service quality items to try to further capture the specific characteristics of ecotourism. In addition, the study focuses on a perceptions-only measurement and thus provides a relevant extension to the ECOSERV model, which was based on an expectations-only measurement of service quality.

3. METHODOLOGY

A self-administered structured questionnaire was developed based on the original ECOSERV scale. This was further adapted in two respects. First, on the basis of a literature review, an additional pool of service quality attributes relevant for ecotourism were identified (Akama and Kieti, 2003; Yusof and Rahman, 2011; Naidoo et al., 2011; Crilley et al., 2012). Second, all the items were adapted to the specific setting of national parks. This resulted in 42 service quality items. Respondents were asked to rate their perceptions of service quality items on a five-point Likert scale anchored at "strongly disagree" as 1 and "strongly agree" as 5. The questionnaire also included additional questions on the socio-demographic profile of the respondents, such as country of residence, gender, level of education, age, employment, mode of visiting the national park, and the number of previous visits to the national park.

The initially developed questionnaire was pre-tested in two steps, through an expert review and a pilot study, and minor adjustments were made before conducting the main study. Both the

pilot and main studies were carried out in national parks in Croatia. The questionnaire was prepared and distributed in four languages: Croatian, English, Italian and German. A total of 541 valid questionnaires were collected from visitors of national parks in Croatia (Brijuni National Park, Kornati National Park, Krka National Park, Mljet National Park, Paklenica National Park, Plitvice Lakes National Park, Risnjak National Park, and Sjeverni Velebit National Park).

The processing and analysis of collected data were carried out using SPSS Statistics 21. The statistical analysis included descriptive analysis, exploratory factor analysis and reliability analysis. As a first step, the descriptive statistics were used to investigate the socio-demographic profile of the respondents. After evaluating the observed service quality perceptions by means of a descriptive analysis, an exploratory factor analysis (EFA) was performed to identify the key dimensions of service quality perceptions. The suitability of the data for the EFA was determined with the Kaiser-Meyer-Olkin measure and the Bartlett's sphericity test. The exploratory factor analysis was performed using the principal components extraction technique and Varimax rotation. Lastly, the reliability of the extracted factors and of the overall scale was estimated by means of the Cronbach's Alpha coefficients.

4. RESULTS

Descriptive statistics were used to analyse the respondents' demographic characteristics. The sample included an almost equal share of male (50.3 per cent) and female (49.7 per cent) respondents. The majority of the respondents were foreign visitors (more than 70 per cent). More than half of the respondents had a university education (56 per cent) and were employed (68 per cent). In terms of age, the two most frequent groups of respondents were between 26-35 years old (27.9 per cent) and between 36-45 years old (19.7 per cent). A large proportion of the respondents visited the national park for the first time (65 per cent) and in a private arrangement, i.e. not as part of an organised group (61 per cent).

The mean values of the service quality perceptions in this study range from 3.53 to 4.18, with an average mean value of 3.88. For all items of service quality perceptions, the mode was a score of 4. Therefore, it can be suggested that service quality perceptions were relatively high across all items. The highest mean value was calculated for the item 'visitors feel safe during visit in the national park', while the lowest mean value was calculated for the item 'the national park employees wear clothes that reflect local influence (e.g. employees' uniforms include details which are typical of the respective area)'.

The underlying dimensions or factors of service quality perceptions were identified through the EFA. The 42 items were subject to the EFA using the principal components method and Varimax rotation. As noted earlier, prior to performing the EFA, the suitability of data was confirmed. The KMO measure had a value of 0.952 indicating sample adequacy (Field, 2009). Bartlett's test of sphericity was statistically significant, confirming the data is suitable for factor analysis (Hair et al., 2010).

The research relied on multiple criteria for the extraction of factors as recommended by the literature (Fabrigar et al., 1999). Only factors with eigenvalues greater than 1 were retained and an inspection of the scree test was performed. Additional requirements were considered for determining the number of factors. Given the sample size, the value of factor loadings needed to be equal or above 0.4 (Hair et al., 2010). Furthermore, only factors with three or more items were considered.

Following a number of iterations, a 6-factor solution with 39 items was chosen as the final solution. This solution had eigenvalues higher than 1 for each factor, exhibited a high level of reliability, explained a relatively high percentage of the total variance, and each factor had at least three items and was interpretable.

The results of the factor analysis for service quality perceptions are presented in Table 1. The findings suggest that, in this research, six factors represent the dimensions of service quality in national parks based on the modified ECOSERV model. The six extracted factors accounted for 62.231 per cent of total variance. The factor loadings ranged from 0.479 to 0.749.

Table 1. Results of the factor analysis for service quality perceptions

Item	Factor					
	1	2	3	4	5	6
Personal attention	0.749					
Understanding of specific needs	0.730					
Individual attention	0.727					
Never too busy to respond	0.643					
Telling when service will be performed	0.639					
Having visitors' best interest	0.598					
Convenient operating hours	0.589					
Willingness to help	0.561					
Prompt service	0.541					
Interest to solve problems	0.536					
Visually appealing natural attractions		0.717				
Natural resources used for equipment		0.683				
Facilities appropriate to environment		0.681				
Min. negative impact of equipment on environment		0.670				
Environmentally safe facilities		0.655				
Use of natural resources for facilities		0.617				
Facilities in unpolluted setting		0.563				
Minimal changes to landform / vegetation		0.508				
Knowledgeable site		0.479				
Promotion of local customs			0.739			
Facilities reflect local influence			0.736			
Materials reflect local influence			0.688			
Clothes reflect local influence			0.645			
Visually appealing service-associated materials			0.621			
Visually appealing facilities			0.558			
Promises completed by a certain time				0.718		
Service provision in promised time				0.715		
Service right the first-time				0.675		
Courtesy				0.564		
Error-free service				0.491		
Knowledge to answer questions					0.643	
Necessary information					0.642	
Safety					0.584	
Instilling confidence					0.552	
Neat appearance					0.448	
Recycle and reuse						0.737
Uncrowded						0.693
Development integrated with the local culture						0.681
Nature-based activities						0.515
Percentage of variance explained	41.374	7.557	4.756	3.817	2.991	2.736
Reliabilities (Cronbach's α)	0.928	0.901	0.861	0.884	0.838	0.784

Note: Extraction methods: principal component analysis; rotation method: varimax with Kaiser normalisation.

Source: Authors

The first factor was labelled *Empathy and Responsiveness* and contained ten items. As five items coincide with the original ECOSERV dimension *empathy* and four items belong to the original ECOSERV dimension *responsiveness*, it could be argued that this factor is best described as caring, individualized attention that national parks provide to their visitors along with the willingness to help visitors and provide prompt service. In this study, these nine items are accompanied by an additional item related to national parks showing interest in solving the problems of visitors. As this factor has most items and explains most of the variance, it could be suggested that it is an important contributor to the perceptions of service quality and could offer a competitive advantage to the national parks.

The second factor was labelled *Ecological Orientation* and included nine items. To a large extent, it is related to the facilities and equipment meeting the needs of ecotourists while being environmentally sensitive. The factor also includes items related to the natural surrounding and the learning opportunity provided by the national park. Together, these aspects imply a need for an overall ecologically oriented management concept that promotes environmentally conscious behaviours, facilities, and practices implemented by national parks.

The third factor was labelled *Local Impact and Appearance* and had six items. The factor is related to the promotion of local customs in the national parks and the reflection of local influences through facilities and service-associated materials (e.g. brochures). The factor also reflects aesthetic aspects of services.

The fourth factor was labelled *Reliability* and included five items. It is primarily associated with the original ECOSERV dimension *reliability*. Additionally, this factor includes an item focused on staff kindness, which can be seen as contributing to the provision of a reliable service.

The fifth factor was labelled *Assurance* and included five items. It contains several items from the original ECOSERV dimension *assurance* and an additional item related to staff's neat appearance. All these items contribute to the level of visitors' trust in the service provided.

Finally, the sixth factor was labelled *Sustainability and Activities* and included four items. It represents a combination of elements focused on sustainable practices and activities in the national parks.

The Cronbach's Alpha value for the overall perceptions scale was 0.961, with values ranging from 0.784 to 0.928 across the six extracted factors. The values exceeded the recommended level of 0.6 (Hair et al., 2010), and thus both the scale and the factors were considered to have a satisfactory reliability.

5. CONCLUSION

The objective of this study was to measure service quality perceptions of visitors of Croatian national parks and to identify its key dimensions by using a modified ECOSERV model. The results of the study suggest six reliable dimensions of perceived service quality. The visitors of national parks placed emphasis on empathy and responsiveness, ecological orientation, local impact and appearance, reliability, assurance, and sustainability and activities. As suggested by previous literature, based on the identified factors, this research confirms that the richness and preservation of natural resources are a necessary, but not sufficient condition for the development of high-quality ecotourism services.

This study provided both theoretical and practical contributions to the field of service quality in ecotourism. In terms of theoretical contributions, the research confirms that service quality perceptions in ecotourism are multi-dimensional and that the modified ECOSERV model is applicable in the context of Croatian national parks. In terms of practical contributions, the research may be used by the management of national parks to map the performance of key elements contributing to service quality. On this basis, the national park management could make targeted improvements of service quality and monitor its performance over time.

The main limitations of this study are reflected in the following opportunities for future research. First, research examining management and staff perceptions of service quality could provide additional insights and allow for comparison of perceptions between different stakeholders. A second possible approach could be to explore both expectations and perceptions of service quality in ecotourism and calculate their gap, in line with the disconfirmation paradigm. Lastly, future research could also be conducted in different types of ecotourism destinations and in different geographies to examine whether the results of this modified ECOSERV model could be generalised.

REFERENCES

- Akama, J.S., & Kieti, D.M. (2003). Measuring tourist satisfaction with Kenya's wildlife safari: a case study of Tsavo West National Park. *Tourism Management*, 24(1), 73–81. [https://doi.org/10.1016/S0261-5177\(02\)00044-4](https://doi.org/10.1016/S0261-5177(02)00044-4)
- Babakus, E. & Boller, G.W. (1992). An empirical assessment of the SERVQUAL scale. *Journal of Business Research*, 24(3), 253–268. [https://doi.org/10.1016/0148-2963\(92\)90022-4](https://doi.org/10.1016/0148-2963(92)90022-4)
- Ban, J., & Ramsaran, R.R. (2016). An Exploratory Examination of Service Quality Attributes in the Ecotourism Industry. *Journal of Travel & Tourism Marketing*, 34(1), 132–148. <https://doi.org/10.1080/10548408.2016.1141155>
- Bojanic, D.C., & Rosen, L.D. (1994). Measuring Service Quality in Restaurants: An Application of the Servqual Instrument. *Journal of Hospitality & Tourism Research*, 18(3), 3–14. <https://doi.org/10.1177/109634809401800102>
- Blamey, R.K. (2001). Principles of ecotourism. In Weaver, D.B. *The Encyclopaedia of Ecotourism* (pp. 5–22). CAB International, Wallingford, UK.
- Brochado, A., Rita, P., & Gameiro, C. (2015). Exploring backpackers' perceptions of the hostel service quality. *International Journal of Contemporary Hospitality Management*, 27(8), 1839–1855. <https://doi.org/10.1108/IJCHM-03-2014-0145>
- Buttle, F. (1996). SERVQUAL: review, critique, research agenda. *European Journal of Marketing*, 30(1), 8–32. <https://doi.org/10.1108/03090569610105762>
- Crilley, G., Weber, D., & Taplin, R. (2012). Predicting Visitor Satisfaction in Parks: Comparing the Value of Personal Benefit Attainment and Service Levels in Kakadu National Park, Australia. *Visitor Studies*, 15(2), 217–237. <https://doi.org/10.1080/10645578.2012.715038>
- Cronin Jr. J., & Taylor, S. A. (1992). Measuring Service Quality: A Reexamination and Extension. *Journal of Marketing*, 56(3), 55–68.
- Fabrigar, L., Wegener, D., MacCallum, R., & Strahan, E. (1999). Evaluating the Use of Exploratory Factor Analysis in Psychological Research. *Psychological Methods*, 4(3), 272–299. <https://doi.org/10.1037/1082-989X.4.3.272>
- Fick, G. R., & Brent Ritchie, J. R. (1991). Measuring Service Quality in the Travel and Tourism Industry. *Journal of Travel Research*, 30(2), 2–9. <https://doi.org/10.1177/004728759103000201>
- Field, A.P. (2009). *Discovering statistics using SPSS (and sex and drugs and rock 'n' roll)* (3rd edition). London: Sage Publication.

- Fennell, D. (2020). *Ecotourism* (5th Edition). London: Routledge. <https://doi.org/10.4324/9780429346293>
- Frochot, I., & Hughes, H. (2000). HISTOQUAL: the development of a historic houses assessment scale. *Tourism Management*, 21(2), 157–167. [https://doi.org/10.1016/S0261-5177\(99\)00045-X](https://doi.org/10.1016/S0261-5177(99)00045-X)
- Grönroos, C. (1984). A Service Quality Model and its Marketing Implications. *European Journal of Marketing*, 18(4), 36–44. <https://doi.org/10.1108/EUM0000000004784>
- Hair, J.F., Black, W.C., Babin, B.J., & Anderson, R.E. (2010). *Multivariate Data Analysis* (7th edition). NJ: Prentice Hall.
- Haverila, M., Haverila, K., & Arora, M. (2020). Comparing the service experience of satisfied and non-satisfied customers in the context of wine tasting rooms using the SERVQUAL model. *International Journal of Wine Business Research*, 32(2), 301–324. <https://doi.org/10.1108/IJWBR-12-2018-0070>
- Juwaheer, T.D. (2004). Exploring International Tourist's Perceptions of Hotel Operations by Using a Modified SERVQUAL Approach - A Case Study of Mauritius. *Managing Service Quality*, 14(5), 350–364. <http://doi.org/10.1108/09604520410557967>
- Khan, M. (2003). ECOSERV: Ecotourists' Quality Expectations. *Annals of Tourism Research*, 30(1), 109–124. [https://doi.org/10.1016/S0160-7383\(02\)00032-4](https://doi.org/10.1016/S0160-7383(02)00032-4)
- Kljaić Šebrek, J. (2020). *Mjerenje kvalitete usluga u ruralnom turizmu: primjena modificirano-ga ruralqual modela* (Doctoral dissertation, University of Rijeka, Faculty of Tourism and Hospitality Management, Opatija). Retrieved from: <https://dr.nsk.hr/en/islandora/object/fthm%3A1758/datastream/PDF/view>
- Loureiro, S.M.C., & González, F.J.M. (2009). Perceived quality in rural lodgings in Spain and Portugal: the ruralqual scale. *Portuguese Journal of Management Studies*, 14(1), 33–52.
- Lovelock, C. H. (1983). Classifying Services to Gain Strategic Marketing Insights. *Journal of Marketing*, 47, 9–20.
- Marković, S. & Raspor, S. (2010). Measuring Perceived Service Quality Using SERVQUAL: A Case Study of the Croatian Hotel Industry. *Management* 5(3), 195–209.
- Marković, S., Raspor S., & Šegarić, K. (2010). Does restaurant performance meet customers' expectations? An assessment of restaurant service quality using a modified DINESERV approach. *Tourism and Hospitality Management* 16(2), 181–195.
- Marković, S., Raspor Janković, S., & Komšić, J. (2013). Museum Service Quality Measurement Using the Histoqual Model. *2nd International Scientific Conference Tourism in South East Europe*. 2011–2016.
- Marković, S., Lončarić, D., & Lončarić, D. (2014). Service quality and customer satisfaction in the health care industry-towards health tourism market. *Tourism and hospitality management*, 20(4), 155–170.
- Naidoo, P., Ramseook-Munhurrin, P., & Seegoolam, P. (2011). An Assessment of Visitor Satisfaction with Nature-Based Tourism Attractions. *International Journal of Management and Marketing Research*, 4(1), 87–98.
- Parasuraman, A., Berry, L. L., & Zeithaml, V. A. (1991). Refinement and Reassessment of the SERVQUAL Scale. *Journal of Retailing*, 67(4), 420–450.
- Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1985). A Conceptual Model of Service Quality and Its Implications for Future Research. *The Journal of Marketing*, 49(4), 41–50.
- Parasuraman, A., Zeithaml, V.A., & Berry, L.L. (1988). SERVQUAL: A Multiple-Item Scale for Measuring Consumer Perceptions of Service Quality. *Journal of Retailing*, 64(1), 12–40.
- Seth, N., Deshmukh, S.G., & Vrat, P. (2005). Service quality models: a review. *International Journal of Quality & Reliability Management*, 22(9), 913–949. <https://doi.org/10.1108/02656710510625211>

- Shafiq, A., Mostafiz, M.I., & Taniguchi, M. (2019). Using SERVQUAL to determine Generation Y's satisfaction towards hoteling industry in Malaysia. *Journal of Tourism Futures*, 5(1), 62–74. <https://doi.org/10.1108/JTF-01-2018-0004>
- The International Ecotourism Society. (2015). *What Is Ecotourism?*. Retrieved June 24, 2020, from <https://ecotourism.org/what-is-ecotourism/>
- The World Tourism Organization. Retrieved June 24, 2020, from <https://www.unwto.org/sustainable-development/ecotourism-and-protected-areas>
- Yusof, N., & Rahman, F.A. (2011). Tourists' Perceptions of Service Quality in a Lake-Based Tourism Area. *International Conference on Business and Economics Research*, 16, 84–89.
- Yusof, N., Rahman, F.A., Jamil, M.F.C., & Iranmanesh, M. (2014). Measuring the Quality of Ecotourism Services: Case Study–Based Model Validation. *SAGE Open*, 4, 1–9. <https://doi.org/10.1177/2158244014538270>

