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QUALITY OF SPORTING EVENTS: VALIDATION OF THE EVENTQUAL SCALE

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ABSTRACT. ***Service quality is an important variable for managing sports organisations. In the management of sports events it becomes necessary to have valid and reliable scales to evaluate the event in order to make good decisions. In the literature of sport management there are few contributions in this regard.***
The aim of this study is the validation of a scale that measures the spectators' perceptions of service quality in sporting events through Structural Equation Modelling (SEM). The EVENTQUAL scale was administered to a sample of 2,154 spectators, subsequently broken up at random into three sub-samples, M1 = 703 subjects, M2 = 713, M3 = 740. The results scale, consisting of 14 items showed good reliability and validity indexes in all tests, likewise, different confirmatory factor analysis conducted, confirmed the four dimensions of spectators' perceptions of quality in sporting events: tangibles, staff, complementary services and accessibility.

KEYWORDS: perceived quality, spectators, sporting events.

JEL classification: J17, M16, M11.

Introduction

Research on service quality in the sports context has substantially increased during the last few years, this is understandable when the importance of perceived quality in the service

sector among different variables related to the organisational success is considered (Dorado, Gallardo, 2005). In a context with no physical product, the users' perception of quality is one of the key aspects of consumer satisfaction, and hence in its purchase intention (Quintanilla, 2002). Efficient quality management, in the service sector specially, becomes a competitive advantage in today's business environment, where its measurement is the beginning from which the design of policies to improve the company's position in an increasingly competitive environment can take place (Dorado, Gallardo, 2004). This has resulted in a proliferation of proposals for measuring service quality in sporting environments (Jasinskas *et al.,* 2013; Morales *et al.,* 2014; Morales *et al.,* 2009; Nuviala *et al.,* 2012a; Serrano *et al.,* 2013). However, this concern has not been equally transferred to the sporting events context, having a limited number of research works (Theodorakis, Alexandris, 2008). From this perspective, the development and validation of a scale to measure service focusing on the sporting events instead of the sport context seems interesting. This paper is not intended as a corollary of every existing tool; only the most relevant will be discussed.

The success of the organisation and management depends on the spectators' perceptions of the provided service quality during the event celebration. Research informs that when users or customers perceive a high quality service, are more loyal, show a greater willingness to continue using the service and tend to recommend it more enthusiastically (Calabuig *et al.,* 2014; Cronin *et al.,* 2000; Nuviala *et al.,* 2012; Zeithaml *et al.,* 1996), therefore, the study of the service quality becomes fundamental for the survival and growth of these companies.

In studies about the spectators' perceptions of service quality in sporting events, some works have been developed using the existing instruments, such as SERVQUAL (Parasuraman *et al.,* 1985), while others have designed their own measurement tools (Burillo *et al.,* 2012; Greenwell *et al.,* 2002; Hyun-Duck *et al.,* 2006; Kelley, Turley, 2001; Zhang *et al.,* 2005).

Although SERVQUAL is considered as the most relevant model, highly cited in the services marketing literature, it has also received some criticism. Mainly, the inclusion of the expectancies in the scale, as some authors do not consider them necessary to measure the quality (Carman, 1990; Cronin, Taylor, 1992), likewise, the need to reduce the questionnaire length in the sporting events context (as it needs to be filled in at the stadium), supports the call to remove the expectations when considering the quality of the sporting event.

Despite these limitations, some authors prefer to use the SERVQUAL model, excluding the expectations if applied to sporting events. This is the case of Theodorakis *et al.* (2001) who developed a model and a measurement tool from SERVQUAL. The tool named SPORTSERV and used in Basketball clubs, considered five factors: access, reliability, responsiveness, tangibles and security.

Within the sport context itself, Kelley, Turley (2001) investigated the spectators' perception obtaining nine quality factors: employees, price, facility access, concessions, fan comfort, game experience, show time, convenience and smoking; game experience and some tangibles held the best ratings.

On the other hand, Zhang *et al.* (2005) designed a tool to measure the spectators' satisfaction focusing on hockey, considering four factors such as the ticket service, the game experience, the stadium services and access. Theodorakis, Alexandris (2008) applied the SPORTSERV scale in the football context, and observed that the less valued quality factors were the tangibles, the responsiveness and the access.

In 2010, Calabuig, Mundina and Crespo, developed the EVENTQUAL tool to measure the perceived service quality of the sporting events by spectators. Exploratory factor analysis

suggested a scale consisting of 22 items and 4 dimensions: tangibles, personnel, complementary services and accessibility. This scale was also used with athletics spectators to predict their future intentions, but the evidence of validity was not provided by structural equations modelling (Calabuig *et al.*, 2010a).

Consequently with the literature review, the need to propose a reliable and valid scale is evident to measure the spectators` perceived quality of sporting events in the Spanish context, using a sophisticated methodology such as the structural equations modelling (SEM). Therefore, the aim of the present study comprises the validation of the EVENTQUAL scale (Calabuig *et al.*, 2010b) by SEM.

1. Methods

Participants. This research is based on data gathered from the spectators that attended a major sporting event in the sport facility having obtained their consent to participate in this research. The initial sample size was 2.164 questionnaires that resulted in 2.154 spectators from 16 to 78 years (M_{age}=31.96 years; SD=11.26; 57.1% males and 42.9% females), after excluding from subsequent analysis those questionnaires filled in by spectators under 16 years. The sample was broken up at random, in three parts, to test the stability of the proposed model: M1=703, M2=713, M3=740 questionnaires.

Instrument. A self-administered evaluation instrument, The Spectators' Perceptions of Service Quality in Sporting Events Scale (EVENTQUAL), was used to collect the data. The initial instrument by Calabuig *et al.* (2010a) contains 22 statements grouped in four sections with a seven-point Likert-type scale indicating the extent of agreement with each item ranging from „strongly disagree" (1) to „strongly agree" (7)

Data analysis. To conduct the statistical analysis of the data, SPSS 18 and EQS 6.1 statistical software was used. Descriptive statistics were calculated at first, and then the reliability and validity of the scale was determined.

2. Results

Items' analysis. The 22 items forming the EVENTQUAL scale were analysed. Final items' drafting, mean, standard deviation, item-total correlation and Cronbach's alpha if the item is removed for each item, are presented in *Table 1*.

Table 1. Analysis of the items: Mean (x), standard deviation (s.d.), item-total correlation (rjx), Cronbach's alpha without the item (α-x) and sample size (n)

Items (n = 2.154)	x	sd	rjx	α-x
1. I have easily arrived at the facility	5,92	1,51	,374	,899
2. It has been easy to get my ticket	6,16	1,43	,415	,897
3. I got the entry that I wanted	5,97	1,57	,340	,900
4. I easily found my seat	6,16	1,35	,480	,895
5. It is easy to walk inside the facility (signalling, corridors…)	6,12	1,20	,542	,894
6. There are enough personnel in the facility to look after users	6,17	1,13	,561	,893

Table 1 *(continuation)*. Analysis of the items: Mean (x), standard deviation (s.d.), item-total correlation (rjx), Cronbach's alpha without the item (α-x) and sample size (n)

7. The facility employees are well trained	5,76	1,27	,612	,892
8. The facility employees do their job properly	6,01	1,13	,631	,892
9. The facility employees are friendly	6,14	1,13	,605	,892
10. Once entering the facility, I felt impressed	5,37	1,44	,497	,895
11. The facility gives me good feelings	5,99	1,12	,579	,893
12. The view of the event is good	6,19	1,04	,599	,893
13. In general, the sound system is good	5,84	1,25	,455	,896
14. In general, the facilities are clean	6,07	1,10	,548	,894
15. The facility is perfect for the sports practice	6,33	0,94	,571	,894
16. The information provided about the development of the event is good	5,29	1,51	,531	,894
17. I felt comfortable with the other spectators	6,14	1,08	,557	,894
18. The coffee service met my needs	4,99	1,61	,501	,895
19. The coffee service employees did their jobs properly	5,46	1,35	,557	,893
20. The cleaning and hygiene of the toilets was good	5,68	1,24	,541	,894
21. There was a good offer on event merchandising (quantity, quality, prize...)	5,10	1,63	,449	,897
22. The facility can be quickly vacated	5,79	1,30	,523	,894

Source: created by authors.

In general, every item seem to adequately contribute to the whole scale, that is, they show a relatively high correlation with the total questionnaire, items with the worst fit being 1 and 2, and when removed the reliability slightly improves.

Reliability analysis. The reliability of the scale, both its component dimensions and the scale as a whole, was examined calculating its internal consistency with the Cronbach's alpha index, however, since this index does not contemplate the influence of other variables into the reliability, the Composite Reliability (CR) and the Average Variance Extracted (AVE) was calculated (Fornell, Larcker, 1981). The minimum accepted value for CR is 0.70 (Nunnally, 1978), on the other hand, the higher the AVE values are, the more representative are the indicators of the latent variable in which they load, values higher than 0.50 are recommended (Bagozzi, Yi, 1988; Hair *et al.*, 2006). The alpha for the EVENTQUAL scale was 0.899. Scale dimensions showed acceptable indexes between values of .628 and .845. Thus the staff factor shows the higher alpha (0.845) followed by the tangibles (0.804), the complementary services (0.747) and the accessibility (0.628).

The three subsamples' CR and AVE result is adequate in every dimension except for „Accessibility". *Table 2* presents the main indicator's synthesis. The composite reliability must be over 0.70 and the average variance extracted over 0.50 (Fornell, Larcker, 1981), however

this criterion is quite conservative and some works have considered values up to 0.40 as acceptable (Ruíz-Molina *et al.,* 2010; Vila *et al.,* 2000).

Table 2. Composition of the scale, composite reliability (CR) and average variance extracted (AVE) in every sub-sample's dimensions

Items by Dimension		M1 (n=703)		M2 (n=713)		M3 (n=740)	
		CR	AVE	CR	AVE	CR	AVE
Accessibility	Item 4 Item 5 Item 7	0,56	0,46	0,62	0,47	0,64	0,50
Personnel	Item 8 Item 9 Item 10	0,81	0,59	0,85	0,66	0,87	0,68
Tangibles	Item 11 Item 12 Item 18	0,75	0,50	0,79	0,56	0,78	0,54
Complementary Services	Item 19 Item 20	0,73	0,50	0,78	0,54	0,80	0,58

Source: created by authors.

Validity analysis. To continue with the scale validation, the internal and the construct validity of the scale were assessed. Construct validity of the scale was determined in previous studies (Calabuig, Crespo, 2009), as well as the criterion and concurrent validity (Calabuig *et al.,* 2010a).

Internal validity. To analyse the internal validity, based on the results obtained with AFE that showed items grouping in 4 dimensions explaining the 57.11% of the variance, (see Calabuig *et al.,* 2010b), the structure was compared through an AFC. The model formed by 14 items grouped into four dimensions seems to be the more adequate to the available data in every sample. The four dimensions keep the original naming: personnel, tangibles, complementary services and access.

The „accessibility" dimension contains items 4 and 5, on the other hand, „personnel" dimension has statements 7, 8 and 9, regarding to „tangibles" dimension contains items 10, 11 and 12, finally the „complementary services" dimension includes information contained in items 18, 19 and 20. Table 2 shows the final composition of the scale as well as the structure. After testing the model in each subsample, a multi-group SEM analysis was performed to assess the validity of the proposed model, ML (Maximum Likelihood) was used in every case with the Satorra-Bentler's 'robust' corrections (Bentler, 1995). Since the Chi-square statistic (χ^2) is highly susceptible to large sample sizes, other indicators were examined, such as the ratio between the Chi-square and its degrees of freedom with acceptable values under five (Byrne, 1989; Carmines, McIver, 1981), the goodness-of-fit indexes like the *Normed fit index* (NFI),

the Comparative fit index (CFI) and the *Incremental Fit Index* (IFI), with values over 0.90 to indicate a good fit (MacCallum, Austin, 2000). Likewise, the *Root Mean-Square Error of Approximation* (RMSEA) was also analysed, accepting values under 0.08 as an adequate fit indicator (Browne, Cudeck, 1993). *Table 3* presents a summary of these indicators.

Table 3. Goodness-of-fit indexes of the Eventqual scale for the different subsamples

Samples	χ^2 (df)	S-B χ^2 (df)	S-B χ^2 / (df)	NFI	CFI	IFI	RMSEA	α
M1 (n=703)	137,396 (38)	89,409 (38)	2,35	.933	.962	.960	.044	.815
M2 (n=713)	178,030 (38)	126,033 (38)	3,31	.931	.950	.951	.057	.864
M3 (n=740)	285,971 (38)	173,960 (38)	4,57	.897	.917	.918	.069	.870
Multigroup (M1, M2, M3)	412,188 (114)	268,227 (114)	2,35	.934	.961	.961	.044	

Source: created by authors.

Considering the previous dimensions and fit indexes, it seems that the proposed structure in the AFE is confirmed (Calabuig *et al.*, 2010a), although the resulting scale is reduced. The internal validity of a shorter version of the instrument seems to be justified, fulfilling the principle of parsimony and facilitating its administration in a complex context such as the sporting events.

Construct Validity. Construct validity was determined by analysing the convergent and discriminant validity of the scale.

In this sense, the items of the scale are strongly and significantly correlated to the latent variables that were meant to measure; t values are higher than 3.291 in all cases (Vila *et al.*, 2000) and the average factor loadings are over 0.70 (Hair *et al.*, 2006), likewise, the model fit does not improve including new loads (Vila *et al.*, 2000), resulting in an adequate convergent validity.

Furthermore, regarding the discriminant validity, the extracted variance test was applied (Fornell, Larcker, 1981; Netemeyer *et al.*, 1990). To determine the existence of discriminant validity, the AVE square root must be higher than the correlations between the pairs of factors or considered dimensions (Fornell, Larcker, 1981; Netemeyer *et al.*, 1990; Vila *et al.*, 2000).

Table 4. Squared Pearson's correlations within the EVENTQUAL dimensions (Sample 1)

	1	2	3	4
1. Accessibility	,633			
2. Personnel	,408	,768		
3. Tangibles	,297	,426	,707	
4. Complementary services	,332	,399	,344	,700

*All correlations are significant (p<0.01).

**AVE Square root in the diagonal

Source: created by authors.

Table 5. Squared Pearson's correlations within the EVENTQUAL dimensions (Sample 2)

	1	2	3	4
1. Accessibility	,671			
2. Personnel	,495	,812		
3. Tangibles	,479	,498	,748	
4. Complementary services	,397	,438	,468	,735

*All correlations are significant (p<0.01).
**AVE Square root in the diagonal

Source: created by authors.

Table 6. Squared Pearson's correlations within the EVENTQUAL dimensions (Sample 3)

	1	2	3	4
1. Accessibility	,693			
2. Personnel	,501	,825		
3. Tangibles	,452	,546	,735	
4. Complementary services	,357	,503	,514	,762

*All correlations are significant (p<0.01).
**AVE Square root in the diagonal

Source: created by authors.

Pearson correlations for the different dimensions and the AVE square root calculations are presented in *Tables 4, 5 and 6*. In general, results suggest adequate discriminant validity.

Conclusions and Discussion

The results obtained in the present study show an adequate Internal consistency, reliability and validity for the EVENTQUAL scale. The presented evidence seems adequate to justify and support the use of this scale, however the sample under study should be extended to other types of sporting events.

Another issue to be discussed, from a theoretical rather than methodological level, refers to the debate on using the expectancies. For Calabuig, Crespo (2009) and Theodorakis *et al.* (2001), measures of the outcome perceptions in the sporting events context, are preferable to the joint measures of the expectancies-perception, both in terms of the time-cost and its psychometric properties. In this sense, measures of the resulting perceptions in previous studies have proven to be superior regarding validity and reliability with respect to measures of disconfirmation (Cronin, Taylor, 1992), in fact, outcome measures are highly used against the expectancies-result measures currently in the sporting context (Ko *et al.*, 2010; Theodorakis *et al.*, 2009).

In any case, the main discussion refers to the quality dimensions of the sporting events, both in number and name. Studies focusing on the SERVQUAL model Parasuraman *et al.* (1985) mostly share the five dimensions (Hyun-Duck *et al.*, 2006; McDonald *et al.*, 1995). However, most of the studies based in other models, provide different dimensions (Greenwell *et al.*, 2002; Kelley, Turley, 2001; Theodorakis *et al.*, 2001; Zhang *et al.*, 2005) that according to their authors, are better suited to the characteristics of the event's offered services.

The data of the present study suggest four quality dimensions in sporting events arising from EVENTQUAL (tangibles, personnel, complementary services and access) and hold most of these attributes. Thus, the tangibles dimension is shared in all of the studies (v.g. Hightower *et al.*, 2002), although some investigations encompass the physical elements of the facility in different dimensions or sub-dimensions (Greenwell *et al.*, 2002; Kelley, Turley, 2001;

Theodorakis, Alexandris, 2008; Theodorakis *et al.,* 2009; Wakefield, Blodgett, 1994, 1996; Zhang *et al.,* 2005). The importance of this dimension is clear in the sporting events context, especially due to the little contact with service employees, which may lead to overstate the importance of the tangible. However, in a novel contribution, Martínez, Martínez (2009) analyse a municipal sports service with the brand concept maps tool and find that this dimension is not very relevant to users, a fact to be considered in future studies.

The other dimensions differ in some studies that are not based in the SERVQUAL model. In this sense, personnel oriented SERVQUAL's four dimensions (security, empathy, reliability and responsibility) have been vaguely introduced in other studies. However, the component items are similar although factor naming differs. Likewise, while Kelley, Turley (2001), Greenwell *et al.* (2002) and Yoshida, James (2010) include a factor named personnel, other authors like Zhang *et al.* (2005) integrate the personnel of the event in a factor named stadium services. On the other hand, the personnel dimension is measured by means of three dimensions in the SPORTSERV model (Theodorakis, Alexandris, 2008). In the present work the personnel dimension includes three items that refer to every aspect of personnel previously presented (knowledge, reliability, empathy and professionalism).

The EVENTQUAL complementary services dimension is also included in other research studies with different denominations such as concessions (Kelley, Turley, 2001), stadium services (Zhang *et al.*, 2005) or periphery services (Tsuji *et al.*, 2007). The services dimension is reduced to three items in this work. However, it is assumed that the presented factorial structure is applicable to both, punctual (i.e. world championship) and durative (i.e. league's matches) sporting events, moreover adapting the dimensions' content to the area of study is recommended. Currently, there are some studies aimed at developing new elements capable of combining this dimension's main ideas.

Access is also recurrent in this area of study. For example, some studies such as those of Kelley, Turley (2001), Theodorakis *et al.* (2001), Yoshida, James (2010) and Zhang *et al.* (2005), introduce access as a differentiated variable. However, the conforming items differ in many cases. Agreement exists regarding seat access and access wide attributes, however the parking area and public services availability are included only in some studies unlike others that do not or they include items related to the ticket purchase feasibility. Anyhow, these disagreements are minor and explained in the context of the study, considering it is illogical to ask about the parking area within a cultural background where the majority of the spectators use the public transport to arrive as indicated by Yoshida, James (2010).

In conclusion, the EVENTQUAL scale has shown good validity and reliability indexes and its application to other sporting events must consider small adaptations to its particular characteristics. However, the construct validation is a continuous process accumulating evidence in different contexts and samples. In this process, the different relations within the service quality, satisfaction and the spectator's future intentions must be analysed, so that the debate on dimensionality and its importance to predict future behaviours is far from its conclusion.

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Guest Paper

SPORTO RENGINIŲ KOKYBĖ: EVENTQUAL SKALĖS PATIKIMUMO VERTINIMAS

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SANTRAUKA

Paslaugų kokybė – svarbus sporto organizacijų valdymo kintamasis. Siekiant priimti tinkamus sprendimus, susijusius su sporto renginių valdymu, svarbu remtis patikimomis renginio vertinimo skalėmis. Sporto vadybos literatūroje šia tema nėra pateikta daug informacijos.

Šiuo tyrimu siekiama pateikti skalės, kuri matuoja žiūrovų suvokiamą paslaugų kokybę sporto renginiuose, patikimumo vertinimą, remiantis struktūriniu lygčių modeliavimu (SEM). EVENTQUAL skalei priskirta 2,154 žiūrovų imtis, kuri atsitiktine tvarka suskirstyta į tris pogrupius: M1 = 703 subjektai, M2 = 713, M3 = 740. Anot rezultatų skalės, susidedančios iš 14 elementų, pagrįstumo ir patikimumo rodikliai visuose testuose buvo geri. Atlikta patvirtinamoji faktorinė analizė patvirtino, kad išskirtini keturi veiksniai, turintys įtakos žiūrovų sporto renginių kokybės suvokimui: materialinės vertybės, personalas, papildomos paslaugos ir prieinamumas.

REIKŠMINIAI ŽODŽIAI: suvokiama kokybė, žiūrovai, sporto renginiai.