

Perceived quality of basketball spectators. A measurement scale validation

Josep Crespo*, Javier Mundina*, Ferran Calabuig* and Rafael Aranda*

PERCEIVED QUALITY OF BASKETBALL SPECTATORS. A MEASUREMENT SCALE VALIDATION

KEY WORDS: Quality, Satisfaction, Spectators, Sport management

ABSTRACT: The aim of the study was to obtain a valid, reliable and reduced measurement scale of basketball spectators. Through application of structural equation modelling *Eventqual* scale was reduced to nine items and three dimensions with good indexes of reliability and validity. The resulting factor structure determined the tangibles, the personnel and the complementary services as quality dimensions for basketball spectators.

The debate on the dimensionality and the inclusion of expectations in the measurement of quality of service has transferred to sporting events and can distinguish two lines of analysis. On the one hand, this tool is adapted to sporting events and, on the other hand, that prefers to design their own measures. In the literature there are studies that use these options to measure the perceived quality of basketball spectators. Theodorakis, Kambitsis, Laios, and Koutelios (2001) created a tool named *Sportserv* from *Servqual* (Parasuraman, Zeithaml and Berry, 1988) that shares the same dimensions of quality. However, Kelley and Turley (2001) developed a measurement scale of perceived quality specifically for the event with nine dimensions. In another study, Kim, LaVetter and Lee (2006), analyze a professional basketball league and use it *Servqual* dimensions but without taking into account expectations.

In line with research that attempts to create a scale that suits the characteristics of the sporting events, Calabuig, Mundina, and Crespo (2010b) developed the *Eventqual* scale to measure service quality perceived by spectators of sporting events measuring only spectators' perceptions. The authors developed the scale in a punctual and multi-sport event such as the Mediterranean Games and differ from *Servqual* arguing that in sporting events, contact between customers and employees of the event is minimal and therefore the *Servqual* scale is not adequate because of four of its five dimensions assess the interaction with employees. Exploratory factor analysis (EFA) proposed a scale of twenty items and four dimensions: tangible, personal, complimentary services and accessibility. This scale was also used with spectators of athletics in order to predict their future intentions but also not provided evidence of validity using structural equation modelling (Calabuig, Burillo, Crespo, Mundina and Gallardo, 2010a).

The objective of this research is the reduction and scale validation *Eventqual* to measure the perceived quality of the audience of an elite basketball league. For this purpose structural

equation modeling (SEM) has been used with spectators at a professional club at the first Spanish basketball league, the ACB League.

The validation of this scale is an important contribution to improve the management and research of sporting events because so far not had a valid, reliable and economical in its extension to measure the quality of these services in Spain.

Method

The sample consisted of 491 spectators who returned the survey administered during four games of the ACB league. Of the total sample, 31.9% $SD = 12.2$ years.

The instrument used for conducting the present study was the *Eventqual* scale (Calabuig, et al., 2010b) reduced to 17 Likert indicators. The alternative response ranges from 1 (strongly disagree) to 7 (strongly agree).

Confirmation of the reduced structure of the scale was performed using SEM and was named as *Eventqual-R*. Analyses were performed using the original data matrix as input and the maximum likelihood method.

To analyse the goodness of fit of the model the chi-square corrected for degrees of freedom and the Satorra-Bentler robust ($SB-\chi^2$) and other fit indexes such as CFI, NFI, NNFI and the IFI were performed. Values below 5 in the chi-square test were corrected for the degrees of freedom and above .90 in the other indexes indicated an adequate fit of the model (Hu and Bentler, 1999). Also, we used the RMSEA index, which reports the parsimony of the model as a measure of reasonable fit when it has a value less than .08 (Hu and Bentler, 1999).

The SPSS 18 statistical software was used for descriptive statistics and correlation calculations and EQS 6.1 for testing the model.

Correspondencia: Javier Mundina, Facultad de Ciencias de la Actividad Física y el Deporte. Universidad de Valencia. C/ Gascó Oliag 3, 46010, Valencia (Valencia).

E-mail: jose.j.mundina@uv.es

* Universidad de Valencia.

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Results

The results obtained with the original factor structure indicated that the setting of this first model was not entirely satisfactory: $SB-\chi^2(129) = 369.70$, $NFI = .87$, $NNFI = .88$, $CFI = .89$, $IFI = .88$ and $RMSEA = .09$. Therefore it was decided to re-specifying the model eliminating those items with low factor loading. The latter model did obtain a satisfactory fit: $SB-\chi^2(24) = 69.67$, $NFI = .95$, $NNFI = .95$, $CFI = .97$, $IFI = .97$, and $RMSEA = .06$. The final model resulted in three dimensions (Tangibles, staff, and complementary services) and nine items, three items per dimension.

Convergent validity, discriminant and reliability

Convergent validity was confirmed as the critical values of t far exceeded the minimum recommended levels (1.96) and were significant ($p < .05$) (Hair, Black, Babin, Anderson and Tatham, 2006).

Discriminant validity was assessed by the correlation between dimensions, which should be less than the square root of the average variance extracted (AVE) (Fornell and Larcker, 1981). Table 2 shows the correlations between dimensions and in the diagonal, the square root of AVE. Also we used the confidence interval test (Anderson and Gerbing, 1988). The condition that within the ranges of ± 2 standard errors in the correlation between factors is not set to 1, it is fulfilled in the present work. So we can say that there is discriminant validity.

Composite reliability coefficient (CR) was calculated to assess the reliability of the measurements whose minimum value of .70 is considered adequate (Bagozzi and Yi, 1988), and the average variance extracted exceeds a target value .50 (Hair, et al., 2006). Both tests of reliability exceed estimated cut-off values and therefore also can ensure the reliability of the scale.

Dimensión	Mean	SD	λ	AVE	CR
Tangibles				.50	.75
The vision of the game is good	4.89	1.52	.65		
The pavilion is ideal for playing basketball	4.53	1.73	.70		
In general, cleaning up the facilities is correct	4.82	1.54	.76		
Staff				.70	.87
The club employees have a good training	5.07	1.24	.83		
The club employees perform their job well	5.42	1.16	.91		
The club employees serve kindly	5.62	1.16	.76		
Complementary services				.70	.84
The cafeteria has met my needs	4.63	1.53	.82		
In the cafeteria is attended quickly	4.41	1.59	.85		
The service employees perform their job well	4.98	1.31	.85		

Table 1. Mean values, standard deviation, standardized factor loadings, average variance extracted and composite reliability of the proposed items and dimensions.

In Table 1, we see that the highest rated dimension is the staff with scores above 5. The highest rated attribute is the friendliness of the staff and the worst score is the speed of the cafeteria. On the other hand, the standardized factor loading is high in all cases

($\lambda > .70$) except for the first item. The composite reliability and average variance extracted shows acceptable values in the case of tangibles and very good values in the staff and complementary services.

	Tangibles	Staff	Complementary services
Tangibles	.70		
Staff	.68 (.63 - .73)	.84	
Complementary services	.69 (.64 - .73)	.57 (.50 - .62)	.84

Note: On the diagonal appears the square root of AVE. In parentheses the confidence interval of the correlation at 90%.

Table 2. Pearson correlation, square root of AVE and confidence interval of the correlation between quality dimensions.

As shown in Table 2, the correlations between pairs of dimensions are moderate and do not exceed the square root of

AVE. Also, as expected, the confidence interval of the correlations does not include the 1 value.

Discussion

In literature, there are different studies on perceived quality of sports services that noted a certain number of dimensions or factors (Alexandris, Zahariadis, Tsozbatzoudis and Grouios, 2004; Morales, Hernandez and White, 2009). The same casuistry is given back to the study of service quality at sporting events (Hightower, Brady and Baker, 2002; Theodorakis et al., 2001; Yusof and See, 2008), occurring no consensus regarding their dimensionality.

This research confirms the *Eventqual-R* scale as a valid and reliable instrument to assess perceived service quality in regular league events where the spectator has experience in the service. The scale consists of a total of 9 items grouped into 3 dimensions such as staff, tangibles and complementary services.

It should be noted from these results the loss of a dimension as is accessibility relative to other investigations (Calabuig et al, 2010a). The explanation for this result could be the difference in perceptions between one-time event and an event that recurs with some regularity as are the big leagues. It seems plausible that in this second case, the access is not a determining factor for attendees. This may be because the experience of the spectators, mostly members or subscribers attending every game to minimize the access and downplaying factor. They consider, in this case that the access to the facility can be understood as something separate to the manager and that the access in its interior is completely assumed and internalized by the spectator with his experience as a regular consumer of the service.

Between studies in sporting events that use alternative scales to Servqual for measuring quality, the study of Kelley and Turley (2001) stands out. They develop a scale for a basketball event and

through an AFE claim that the dimensions that determine the quality attributes of the event are nine and match the dimensions of staff and complementary services. Instead, as is the case with the study of Zhang et al. (2005) for hockey spectators matches does not give importance to access. These authors conclude on four factors, the ticket service, the game, services and access. In another study in the professional league football in Malaysia, Yusof, and See (2008) argue that access, comfort of the seat, animation, staff and the cost of ticket are important factors such as counting with stars on the team. We agree with these studies that the tangible aspects, staff and complementary services are also dimensions of service quality in sporting events.

Finally, Theodorakis et al. (2001) performed an adaptation of the *Servqual* scale, of the five original dimensions, they maintain 4 and showed that the most important dimension was the access and tangibles, that was not in accordance in the case of accessibility, but does as the tangible.

Therefore as it can be seen there is a discrepancy in the dimensionality of service quality at sporting events. It seems reasonable to assume that the measure must be adapted to the characteristics of the event and in this sense we believe that the further analyses would have to differentiate between punctual events (games, finals) and regular events (leagues). According to the results it seems intuit that in the regular events, accessibility ceases to have prominence and, instead, acquire it tangible, the staff and complementary services.

Finally, in conclusion, we can say that the validation of this scale is an important contribution to improve the management and research of sporting events in Spain and so far not had a valid, reliable and economic in its extension to measure quality from the viewpoint of spectators.

CALIDAD PERCIBIDA POR LOS ESPECTADORES DE BALONCESTO. VALIDACIÓN DE UNA ESCALA DE MEDIDA

PALABRAS CLAVE: Calidad, Satisfacción, Espectadores, Gestión deportiva.

RESUMEN: El objetivo del presente estudio fue obtener una escala de calidad percibida por los espectadores de baloncesto válida, fiable y reducida. Mediante la aplicación de modelos de ecuaciones estructurales se redujo la escala Eventqual a nueve ítems y tres dimensiones con buenos indicadores de fiabilidad y validez. La estructura factorial resultante determinó como dimensiones de calidad para los espectadores de baloncesto a los tangibles, el personal y los servicios complementarios.

QUALIDADE PERCEBIDA PELOS ESPECTADORES DE BASQUETEBOL. VALIDAÇÃO DE UMA ESCALA DE MEDIDA

PALAVRAS-CHAVE: Qualidade, Satisfação, Espectadores, Gestão desportiva.

RESUMO: O objetivo deste estudo foi obter uma escala de qualidade percebida pelos espectadores de basquetebol válida, fiável e reduzida. Através da aplicação de modelos de equações estruturais reduziu-se a escala Eventqual a nove ítems e três dimensões, com bons indicadores de fidelidade e validade. A estrutura factorial resultante determinou como dimensões de qualidade para os telespectadores de basquetebol tangível, o pessoal e os serviços complementares.

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