


Changes in the perceived quality by undergraduate students of a university sports service: A comparison of two measures

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ABSTRACT

University physical activity is vital when talking about healthy lifestyle habits within a population which often does not have enough time or adequate space to do it for different reasons such as academics, timetables, etc. Because of this, having a quality sports service within the university is fundamental when motivating students to participate in physical activity. This research aimed to measure the quality levels perceived by students who use the sports services offered by the Pontificia Universidad Católica de Valparaíso, Chile. This study was framed under a quantitative approach with a descriptive scope. The sample consisted of 697 university students. Information was collected using the adapted version of the SERVQUAL instrument. The results reveal that the student's perception in dimensions related to the treatment by the teachers in charge of the workshops and activities, such as responsiveness and security, are satisfactory, with results close to excellence. To a lesser extent, empathy and part service reliability when participating in the workshops offered. Finally, the great deficit is found in the dimension of tangible elements, showing problems of modernity in spaces and the dissemination of effective means of communication.

Keywords: Physical education, Exercise, Perceived quality, Sports services, Servqual, Physical activity, University sports, Sports workshops.

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INTRODUCTION

Sports services do not differ much from any other (Larson & Steinman, 2009) so to establish the level of delivered service, it is important to understand user satisfaction and user compliance through their perception (Kim & Severt, 2011; Murray & Howat, 2002) as quality is not defined by the organization, but by the users themselves (Gronroos, 1994; Morales et al., 2005; Quintanilla, 2003). Different studies have shown that the user of sports services have become an experienced consumer who, like in other contexts, have expectations of the benefits they expect from the service (Bodet, 2006). The new conception of physical sports practice and its expansion has led to an increase in the number of users, which makes the use of marketing tools and strategies indispensable in the hope of adapting better and faster to a highly dynamic and demanding sector (Mañas Rodríguez et al., 2008; Morales et al., 2005). Service quality measurement is proposed as a tool for the development of a quality management system, bringing to be able to evaluate both before and after the use of the service, through changes in attitudes and perceptions towards it, because of cognitive and affective processes of the users (Calabuig Moreno et al., 2008).

The quality is different from person to person, being a very dynamic concept, as it is subject to changes in needs, opinions, preferences, and tastes of users since if the user presents an expected perception greater than the perceived one, there will be a dissatisfied user, if their expected perception is equal to the perceived one they will be a satisfied user and if their perceived perception is greater than the expected one they will be an enthusiastic user (Yacout, 2010). Service quality is conceptualized as the degree and direction of the discrepancy between users' expectations and their perceptions and the difference between what the user expects and what he/she receives (Parasuraman et al., 1985, 1994). Considering the above, certain criteria must be managed to ensure quality and, thus, a longer and more motivating participation within sports services. We must remember that the quality perceived by users is subjective and varies depending on internal and external factors (Parasuraman et al., 1988). The service provider must deliver many of these criteria many: responsiveness, reliability, empathy, safety, and tangible elements (Parasuraman et al., 1988). Furthermore, if we refer to perceived quality, according to this is shaped by the actual quality of the service and the quality expected by the user (Galvis, 2011).

The quality of service is of great importance, as it can ensure a customer's stay and loyalty, understanding loyalty as "*a deep commitment to repurchase a preferred product/service in the future*" (Oliver, 1993) (p. 34), allowing the organization to maintain and improve itself; this is why user satisfaction is essential for any organization, which is why it is necessary to comply with basic quality standards and to know the user's perception of the service provided. In the university context, physical and sporting activities are part of an educational framework, so they must contribute to the education of students (Canibe, 2011; Lopez, 2001). Although there are as many models of sports services as there are universities (Morales-Cevdanes, 2009), and the purpose of promoting the practice of physical activity and sports at the university is to create healthy lifestyles in the community and to offer quality sports services that satisfy the interests and motivations of users (Morquecho - Sánchez et al., 2016).

It became evident that the most widely used instruments for measuring the perceived quality of sports services in different areas have followed the guidelines of the SERVQUAL (Parasuraman et al., 1988) and SERVPERF (Cronin & Taylor, 1992) models. Particularly in the university sector, in recent years, work has been carried out that has investigated the perceived quality of sports services, notably that carried out in Venezuela by in which they carried out an analysis of the reliability and validity of the SERVQUAL instrument, obtaining good indicators (Mejías et al., 2010). The same instrument was applied to Mexican students, concluding that the two dimensions related to the teaching staff represent the main agent acting in the

formation of the perception of sport service quality (Araiza Vázquez et al., 2017). Another study used SERVQUAL in a sample of Colombian students with results along the same lines, with the teacher receiving the highest rating (Cardona Mejía et al., 2019). The review highlights the study conducted with a sample of users of the sports services of the University of Burgos in Spain (Corbí Santamaría et al., 2018), to which they applied the Goal Content for Exercise Questionnaire (GCEQ) instrument (Sebire et al., 2008), concluding that the lowest rated aspect of the service was the compatibility of schedules. In this study, the analysis will focus on comparing the perceived quality of users of a university sports service based on two measurements along the lines of those proposed with a focus on generalized sport (Calabuig Moreno et al., 2012), which groups together the entire range of directed activities and non-competitive sports practice (Fernandez et al., 2013) and the relationship between its variables.

METHOD

Sample

The sample was composed of university students ($n = 697$) and users of the services offered at the Pontificia Universidad Católica de Valparaíso, Chile sports facilities sports and distributed by sex were 365 men (52.4%) and 332 women (47.6%), with a mean age of 22.02 ± 32 . In turn, participants were considered in 2 subsamples, the first corresponding to the 2017 measurement ($n_1 = 325$) with a sex distribution of 55.07% women and 44.92% men, and the second subsample corresponding to the 2018 measurement ($n_2 = 372$) with a percentage distribution by sex of 41.12% women and 58.87% men. As inclusion criteria, participants had to be enrolled at the university and regularly use the university sports services in question.

Instrument

The information was obtained from the SERVPERF (Service Performance) instrument (Cronin & Taylor, 1992), which was adapted from the SERVQUAL (service of quality) model (Parasuraman et al., 1988). The modification was that the subjects are asked once about the service received, without attending to expectations. SERVQUAL comes from the non-confirmatory paradigm, and SERVPERF from the performance paradigm. The instrument has been used in several studies (Alexandris et al., 2004; Alonso Serrano & Segado, 2015; Ko & Pastore, 2005; Lam et al., 2005; Martínez & Martínez, 2009; Nuviala et al., 2012; Nuviala Nuviala et al., 2015; Serrano & Segado, 2015) aims to measure users' perception of the quality of service in the various sports services and activities offered by the university. The instrument consists of a scale of twenty-two items, each rated on a Likert-type scale, with values ranging from 1 (Poor) to 7 (Excellent) grouped into five dimensions as detailed in Table 1.

Table 1. SERVPERF scale composition.

Dimensions	Variables	Item number
Tangible Elements (ET)	Appearance of physical facilities, equipment, personnel, and communication materials.	5, 8, 11, 15 & 20
Reliability (FI)	Ability to execute the promised service reliably and carefully.	4, 6, 7, 14 & 19
Responsiveness (CR)	Willingness and willingness to assist the user and provide a fast service.	2, 10 & 17
Security (SE)	Knowledge and attention showed by employees and their skills to inspire credibility and trustworthiness.	3, 9, 13 & 22
Empathy (EM)	Individualized attention offered by organizations to their consumers.	1, 12, 16 18 & 21

The instrument was tested for validity and reliability. Table 2 shows the results of the internal consistency analysis using Cronbach's alpha coefficient ($\alpha = .938$), which allows the questionnaire to be used for research purposes. Bartlett's test of sphericity showed a significant value ($p < .001$), indicating an association between

the variables. The construct validation showed a Kaiser-Meyer-Olkin measure of adequacy for the questionnaire (KMO = .953), reporting that the variables studied are strongly associated and correlated. It is important to mention that the questionnaire was adapted to the university setting to assess users' perceptions of service quality.

Table 2. Validity and reliability results.

Reliability and validity tests	Value
Cronbach's alpha	.938
KMO*	.953
Bartlett's test ($p < .05$)	.001

Note. * Kaiser-Meyer-Olkin construct validation test.

Method

For the collection of information, the same procedure conducted in two different years (2017 and 2018) during September and October to assess the perception of quality and changes among the measurements. The participants were first selected, basis voluntarily, from among the users of the sports services offered by the University's Directorate of Sports and Physical Activity (DIDAF) in person at the start or end of the activities at the campuses that make use of them. For those who agreed to participate favourably and met the inclusion criteria, a trained interviewer read the informed consent document, which accepted and signed by each participant. The items and statements contained in the instrument were read, and each participant's responses recorded in each format, achieving, in both data collection periods, responses from a total of 697 participating users. This sampling method chose because of the difficulty of conducting a probability sample due to the of need for an updated register of users of the DIDAF sports services. Furthermore, the research objectives did not seek representativeness or generalizability of the results. Subsequently, the responses obtained were coded and recorded in a data matrix in Microsoft Excel software. Once the matrix was cleaned, it was transferred to another software for statistical processing, procedures that will be detailed in the following section.

Statistical analysis

To answer the research objectives, descriptive statistics were used to organize and describe the data, in addition to inferential statistics, whereby means of the theory of probabilities, we sought to obtain conclusions about the measured parameters of the sample. The analysis was initiated using the statistical tests Cronbach's Alpha, Kaiser-Meyer-Olkin, and Bartlett's test. A high reliability of the data obtained was determined. Since the data came from a normal distribution, the Student's t-test was used to make comparisons according to items and dimensions. Finally, to determine the relationship between the items of the scale, Pearson's correlation tests (r) were applied using the Statistical Package for the Social Sciences software version 27 (SPSS V27.0).

RESULTS

Table 3 presents the most relevant comparative results considering the subsamples obtained in the measurements carried out in 2017 and 2018, expressed in means and standard deviations with the application of the statistical t-student test and p-values of the statistical reliability indicator. This test reports two statistically significant differences in the items of the dimension on the updating of attendance records kept by the teacher/monitor with a mean of 5.26 points ($p < .001$) and staff interest in helping with 5.38 points on average ($p < .05$).

Table 3. Mean, standard deviation, and *p*-value of the dimensions: empathy, responsiveness, and safety.

Items	2017		2018		Total		<i>p</i> -value
	M	SD	M	SD	M	SD	
Empathy dimension							
EM1 Sufficient staff for personalized attention	4.66	1.527	4.94	1.439	4.81	1.486	.011*
EM2 Staff have the interests of users at the heart	4.94	1.480	5.19	1.324	5.07	1.404	.016*
EM3 Adequate workshop schedules	4.55	1.673	4.53	1.741	4.54	1.708	.87
EM4 DIDAF understands my needs	4.62	1.400	4.90	1.503	4.77	1.462	.01**
EM5 Teachers give personalized attention	5.42	1.442	5.44	1.423	5.43	1.431	.88
Responsiveness dimension							
CR1 Teachers are ready to help	5.92	1.226	6.01	1.117	5.97	1.169	.28
CR2 Teachers provide a timely service	5.72	1.326	5.89	1.074	5.81	1.200	.58
CR3 The teacher communicates when the activity will be completed.	5.70	1.267	5.77	1.167	5.74	1.214	.41
Security dimension							
SE1 Service personnel provide a sense of security	5.40	1.272	5.71	1.202	5.57	1.244	.00***
SE2 Teachers are friendly	6.18	1.101	6.15	0.998	6.17	1.047	.67
SE3 Staff is trained to answer questions	5.44	1.390	5.72	1.162	5.59	1.280	.004**
SE4 Teacher inspires confidence in students	6.04	1.159	6.06	1.095	6.05	1.124	0.80

Note: M = Mean; SD = Standard deviation; * Significance at $p < .05$; ** $p < .01$; *** $p < .001$.

The Table 4 presents the results of the t-test for the Reliability and Tangible Elements dimensions. It shows statistically significant differences and a positive increase compared to the measurement of the year 2018 compared to 2017, in all items of the dimension Tangible Elements, with greater strength, expressed in the measurement of the measured item of printed material with 4.07 and the item virtual media attractive for its information with 4.41 points on average ($p < .001$). As well as, regarding the item's sports facilities are attractive with a mean of 3.71 points ($.2 < .01$), neat appearance of the staff with 6.01 ($p < .01$) and modern sports facilities with 3.78 points on average ($p < .05$). On the other hand, in the Safety dimension, statistically significant differences obtained in the topic of service staff makes you feel safe with 5.57 ($p < .001$) and in staff trained to answer questions with 5.59 ($p < .01$).

Table 4. Mean, standard deviation and *p*-value of the dimensions reliability and tangible elements.

Items	2017		2018		Total		<i>p</i> -value
	M	SD	M	SD	M	SD	
Reliability dimension							
FI1 Services are completed on schedule	5.93	1.225	6.03	1.120	5.98	1.171	.24
FI2 Staff provide good service	5.34	1.384	5.52	1.247	5.43	1.315	.73
FI3 Staff deliver on their promises	5.33	1.399	5.35	1.317	5.34	1.355	.83
FI4 When faced with problems, staff show interest in helping	5.26	1.434	5.48	1.302	5.38	1.369	.03*
FI5 Staff maintain up-to-date and readily available records	5.10	1.436	5.40	1.417	5.26	1.433	.005**
Tangible elements dimension							
ET1 DIDAF has modern sports facilities.	3.64	1.596	3.90	1.668	3.78	1.639	.032*
ET2 The printed material provided is attractive for its information	3.83	1.669	4.29	1.612	4.07	1.654	.00***
ET3 The printed material provided is attractive for its information.	4.14	1.606	4.66	1.598	4.41	1.622	.00***
ET4 Virtual media are attractive for their information.	3.55	1.632	3.85	1.698	3.71	1.673	.018**
ET5 Teachers have a neat appearance	5.89	1.281	6.11	1.021	6.01	1.154	.013**

Note: M = Mean; SD = Standard deviation; * Significance at $p < .5$; ** $p < .1$; *** $p < .01$.

The Table 5 presents the results of the Pearson correlation analysis. It reports the existence of positive correlations between all items of the SERVPERF scale considering the sample ($n = 697$), among which moderate positive correlations ($p \geq .5$) with the highest values stand out: Staff cares about users' interests

with Staff keeps the promises they make ($r = .585$); Staff cares about users' interests with Staff trained to answer questions ($r = .672$); Teachers give personalized attention with Teacher inspires confidence in students ($r = .663$); Service staff make feel confident with Teacher inspires confidence in students ($r = .604$); Service staff make feel confident with item Services are completed on schedule ($r = .613$).

Table 5. Item-wise correlations of the SERVPERF scale.

Item	EM 1	EM 2	EM 3	EM 4	EM 5	CR 1	CR 2	CR 3	SE 1	SE 2	SE 3	SE 4	FI 1	FI 2	FI 3	FI 4	ET 1	ET 2	ET 3	ET 4	ET 5	
EM 1		.481	.354	.416	.500*	.474	.329	.3	.560*	.332	.394	.424	.485	.387	.383	.444	.427	.37	.312	.324	.333	
EM 2			.34	.549*	.536*	.442	.422	.436	.551*	.449	.672*	.501*	.573*	.503*	.585*	.509*	.432	.455	.49	.444	.44	
EM 3				.472	.313	.265	.25	.322	.261	.233	.279	.314	.351	.264	.266	.385	.396	.291	.269	.418	.206	
EM 4					.375	.324	.364	.4	.409	.325	.477	.401	.481	.491	.44	.507*	.489	.465	.414	.506*	.317	
EM 5						.584*	.485	.508*	.540*	.519*	.517*	.663*	.512*	.446	.474	.461	.308	.314	.247	.317	.585*	
CR 1							.532*	.509*	.623*	.562*	.524*	.595*	.571*	.472	.514*	.418	.286	.25	.238	.255	.554*	
CR 2								.568*	.485	.584*	.532*	.583*	.503*	.453	.491	.489	.253	.234	.273	.288	.528*	
CR 3									.458	.544*	.527*	.612*	.462	.463	.493	.505*	.225	.23	.231	.213	.559*	
SE 1										.563*	.599*	.604*	.613	.48	.585*	.506*	.349	.335	.295	.327	.502*	
SE 2											.556*	.646*	.521*	.439	.524*	.446	.242	.21	.201	.189	.537*	
SE 3												.560*	.616*	.55	.701**	.549*	.361	.366	.389	.365	.522*	
SE 4													.519*	.465	.510*	.528*	.274	.246	.242	.263	.676*	
FI 1															.653*	.594*	.509*	.444	.408	.331	.379	.46
FI 2																.510*	.446	.368	.386	.312	.37	.436
FI 3																	.508*	.381	.336	.307	.387	.439
FI 4																		.383	.394	.347	.345	.471
ET 1																			.413	.361	.682*	.189
ET 2																				.543*	.471	.177
ET 3																					.425	.177
ET 4																						.169
ET 5																						

Note: * = Moderate correlation; ** = Significant correlation.

In line with the above, correlations are also observed for the item's teachers are friendly with teacher inspires confidence in students ($r = .646$); staff trained to answer questions with services are completed on time ($r = .616$); services are completed on time with staff provide good service ($r = .653$). Finally, the only significant positive correlation ($p \geq .7$) is for staff trained to answer questions with staff the promises they make ($r = .701$).

DISCUSSION AND CONCLUSION

The objective of the present work was to conduct a comparative analysis of the quality perceived by users of a university sports service based on two measurements. For the purposes of the present discussion, after reviewing the literature, no articles were found with the same methodology as the present work that analysed the same population at two separate times, which constitutes a novelty. The results on the comparison of both measures reported that all the evaluations for all the items of the scale improve in the second measurement, consequently all the dimensions were positively evaluated, in the same line of the results obtained in a recent study in university population (Matus-Castillo et al., 2023).

In detail, in an item-by-item analysis, significant differences were found between both measurements for twelve of the twenty-two items of the scale. The differences obtained in the items grouped in the dimension "*Tangible Elements*" stand out, where all items reported significant differences. On this dimension, a current study has determined that the quality of sport service influences user satisfaction (Mohamad Sheriff et al., 2022) and in this sense the results could be explained by modernization or maintenance of sports equipment and facilities and point out that the future management of this type of services should mainly focus on enhancing sports materials and facilities (García Mayor et al., 2016). Significant differences were also found in the "*Empathy*" dimension. In three items: "*the staff is sufficient for personalized attention*", "*the staff is concerned about the interests of users*" and "*DIDAF understands my needs*", the latter with the strongest

significant difference in this dimension. These results are valued coincide with previous works in which they conclude that the human factor is also positively valued (Mañas Rodríguez et al., 2008; Nuviala et al., 2012).

On the other hand, the results obtained for the "*Safety dimension*", the item "*the service staff makes me feel safe*" stands out with a strong statistically significant difference. This can be explained by the quality of the staff, which is supported by the positive correlations between items of the "*Empathy*" and "*Safety*" dimensions. The most highly rated dimension was Responsiveness in terms of the willingness and punctuality of teachers/trainers such as other previous studies (Calabuig Moreno et al., 2012; Morales et al., 2005; Murray & Howat, 2002; Nuviala Nuviala et al., 2015). Along these lines studies indicate that the human factor is a determinant for user satisfaction particularly the trainers (Keegan et al., 2010), who are a fundamental element for the organization, since they are in direct contact with the students during the provision of the service, which would constitute a particular element that should focus the attention of managers (Fernández et al., 2013).

Based on the results reported in the Tangible Elements dimension, this dimension registered the lowest ratings in the present work, but with the highest increase between both measurements. The first impression of the users of the service they will receive where the expected quality clashes directly with the actual quality (Galvis, 2011), where the quality perceived by the users of the sports service is created; this is why a maximum of potential is always expected on any infrastructure and that they usually receive low valuations (Nicolás-López & Escaravajal-Rodríguez, 2020; Sánchez García et al., 2017). Regarding the level of correlation between the items of the instrument, the results allow us to establish that there is a positive correlation between all the variables in the same line as those found in previous analysis (Mejías et al., 2010), which could reveal interesting patterns and behaviours among users of sports services. Finally, the results obtained allow us to reinforce the idea that measuring the quality provided by sport services through the perception of their users is fundamental when assessing whether the objectives of these services are being met (Kim & Severt, 2011; Murray & Howat, 2002) and the SERVPERF instrument is one of the most widely used models (Serrano & Segado, 2015).

AUTHOR CONTRIBUTIONS

All the authors have contributed equally to each of the sections of the study conducted.

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