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## ORIGINAL

### CONVERGENT VALIDITY OF NPS AND ASSESSMENT OF LOYALTY MODELS IN SPORTS SERVICES

### MODELOS DE MEDICIÓN DE LA LEALTAD EN SERVICIOS DEPORTIVOS

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## **ABSTRACT**

The aim of the present work is to determine the validity of the Net-Promoter-Score for measuring loyalty and to compare two relational models which incorporate the dimensions of quality, value, satisfaction and loyalty. Firstly, convergent validity of the Net Promoter Score in sport service users was determined through correlational analysis of both instruments. Following this, the two models were tested using, first, the Net-Promoter-Score and, second, a multidimensional scale that measures future intentions. In both cases, the same instrument was used to evaluate quality, value and satisfaction. A confirmatory factorial analysis was conducted of the studied models with the objective of testing the stability of the models. The results obtained demonstrate that the two instruments are valid for measuring the loyalty of sport service users. Further, findings show that the model using the multidimensional scale provides more information to guide the decision making of those responsible for the management of these services.

**KEYWORDS:** Sport services, validation, loyalty, allegiance, future intentions.

## RESUMEN

La finalidad de este trabajo es estudiar la información proporcionada por dos modelos que evalúan la lealtad de usuarios de servicios deportivos. El primero utiliza Net Promoter Score y el segundo que usa una escala multifactorial de intenciones futuras. En primer lugar, se determinó la validez convergente del Net Promoter Score como instrumento de medida de la lealtad/fidelidad de los usuarios de servicios deportivos mediante una correlación entre la escala de Intenciones Futuras de usuarios de servicios deportivos y el ítem Net Promoter Score. Posteriormente se compararon ambos instrumentos incluidos en un modelo que relaciona calidad, valor, satisfacción con las intenciones futuras y la lealtad. Se realizó un análisis factorial confirmatorio de los modelos estudiados con el objeto de comprobar la estabilidad de los modelos. Los resultados obtenidos demuestran que los dos instrumentos son válidos para medir la lealtad de los usuarios de servicios deportivos, con predominio del segundo modelo.

**PALABRAS CLAVE:** Servicios deportivos, calidad, valor percibido, satisfacción, lealtad, fidelización, intenciones futuras.

## INTRODUCTION

The sensitivity of those in charge of sport organisations in relation to the assessments made by the users of their services has increased in recent years, with the aim of improving their loyalty and allegiance (Fernández-Martínez et al., 2020). Amongst the most relevant indicators in the different market sectors, as with sport and physical activity, the Net Promoter Score (NPS) is identified as seeking to improve understanding of the loyalty of clients through a single item. The present research study seeks to validate the NPS within sports service users and to examine the information provided by two different models which study the relationships between loyalty and its antecedents (quality, value and satisfaction) in sports service users. The first of these models uses the NPS, whilst the second model uses an instrument that measures users' future intentions.

Growing concern about the understanding and assessment of the perception held by users of different sport organisations (Nuviala, et al., 2017), means that those in charge of these services must attempt to gauge the opinion of their users, with the objective of being able to improve the way in which they manage their service (Martínez-Tur, et al., 2000; Ortega et al., 2021). Knowledge of the appraisals of users is one of the main routes towards attaining greater satisfaction (Afthinos, et al., 2005; Nuviala et al., 2020; Nuviala, et al., 2015), which in turn translates to an increase in the loyalty and allegiance of these users (Calabuig-Moreno et al., 2016; Roca et al., 2018). A number of different tools are available that enable the assessments of clients to be probed, with some of these focusing exclusively on loyalty.

The instrument conceived by Reichheld (2003) can be mentioned as one of the instruments that assesses loyalty. This author conceptualised the term the index of the Net Promoter Score (known as the NPS according to its abbreviation in the English language). This term describes the disposition of a client towards recommending a product or service to another person: "What is the probability that you would recommend [business/product/service X] to a friend, colleague or relative?" Using this instrument, a number of response thresholds for classifying the clients of a company are defined: Promoters (9-10); Passive (8-7); Detractors (<6). The NPS is calculated in the following way ( $\% \text{ of promoters} - \% \text{ of detractors} = \text{NPS}$ ) (Markey, et al., 2009).

The NPS has become a highly popular indicator due to the simplicity it provides in enabling the measurement of client loyalty in various sectors of production and economic development using a single question. (Wiesel, et al., 2012). In this way, Pingitore et al. (2007) investigate and utilise the NPS within sectors such as the automotive industry, financial and insurance services, and the airlines industry. Pollack and Alexandrov (2013) used this instrument in services such as banking services, aesthetics and mobile telephone services. Faltejsková, et al. (2016) has used it in financial services. In the ambit of attention to health, it has been used in research conducted by Kinney (2005) and by Krol, et al. (2015).

In the scope of sport and physical activity, it has been used by Murillo et al. (2016) who studied overall satisfaction of the public and of sportspeople attending a sports event using the SERQUAL scale and the NPS. In addition, García-Fernández, et al. (2016) conducted a study in the fitness sector, concluding that differences existed in economic expenditure based on the profile and the loyalty of clients attending low-cost fitness centres.

A review of the scientific literature uncovers studies that have evaluated the future intentions of sport service users by grouping a number of items into one single factor. The present study uses as a reference studies carried out by Avourdiadou and Theodorakis (2014) which used three items, and Theodorakis et al. (2014) which used four items. Another tool is also identified, a multifactorial scale, which can be used to assess the future intentions of sport service users (Nuviala et al., 2014). This aforementioned instrument aims to estimate the loyalty of users towards the organisation where they engage in practicing sport or physical activity in their free time. This is assessed alongside the capacity of clients to adapt to price increases for the service and the likelihood of them making complaints and claims against the service, as a tool in addressing inconsistencies in the service received. This tool has been adapted to sport services using the tool designed by Zeithaml, Berry and Parasuraman (1996). It is one of the most commonly used instruments for better understanding behavioural intentions (García-Fernández, et al., 2014). Further, this instrument complies with the recommendation stating that multidimensional instruments should be used to measure the repeat purchase intentions of customers (Pollack, 2009; Soderlund, 2006).

Use of the NPS as a measure of client loyalty offers an advantage with respect to other measurement indices. Firstly, it enables a direct measurement of satisfaction using a single item and, secondly, outcomes can be compared with other services or products (González-Rodríguez and Garza-Villegas, 2014). In achieving a high response rate (the instrument is short and easy to understand) representativeness of the results is increased. Further, it has been demonstrated that this index is a predictor of future success, leading it to motivate individuals at whatever level of an organisation to focus their activities on improving the quality of their services (Ellis and Van Aart, 2013). Despite this, the instrument possesses the metric limitations of a one-dimensional instrument. These disadvantages are not shared by multidimensional instruments which offer greater guarantees with regards to reliability and validity (Aksoy 2013; Keiningham et al., 2007; Kristensen and Eskildsen 2011; Pollack and Alexandrov 2013; Zaki, Kandeil, et al., 2016).

In addition to this controversy regarding one-dimensional and multidimensional instruments, it has been observed that studies do not provide sufficient information for those in charge of sport services who are in a position to act with regards to quality, value and client satisfaction (Lee, et al., 2011; Murray and Howat, 2002; Theodorakis, et al., 2014). Sporting literature includes studies which endorse the existence of a relationship between these constructs (García-Pascual et al., 2019), however, only one study is found to have associated the dimensions of quality, value and satisfaction with loyalty and

service users' future intentions (Pérez-Ordás et al., 2019). Further, this prior study was conducted only with adolescents.

Given all of the aforementioned issues, the present study seeks to determine the convergent validity of the NPS as an instrument for measuring the loyalty/allegiance of sport service users. Likewise, it strives to analyse the information provided by two models that examine dimensional associations between quality, value, satisfaction and loyalty. In the first model, dimensions are measured using the NPS (model 1), whilst in the second model a multifactorial scale of future intentions (model 2) is used.

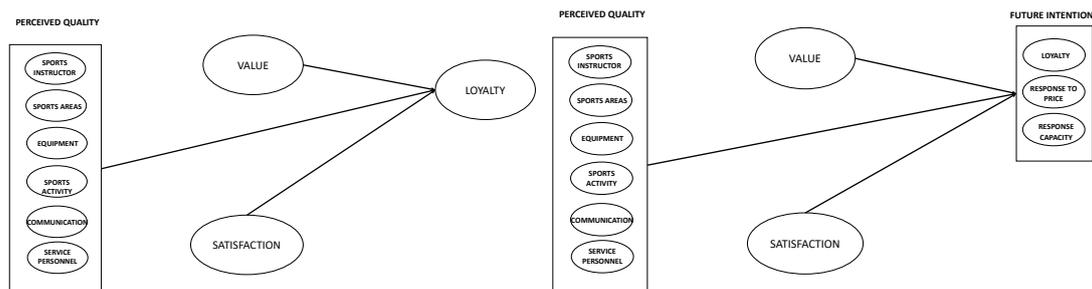


Figure 1. Model 1 (NPS) and model 2 (multifactorial scale of future intentions)

## MATERIAL AND METHODS

### Participants

Participants of the present study were 1057 service users who engaged in physical activity through public sport services. Data provided by the management entity of covered services shows that a total of 65548 clients use these services. This enables us to conclude the existence of a 3% margin of error for a 95% confidence level. Males formed 34.7 % of the sample with 65.3% being females, the average age is  $41 \pm 14$  years ( $40.50 \pm 13.71$ ). With regards to the sociocultural level, 8.3% had completed primary studies, 47.9% possessed secondary study qualifications and 42.6% had higher academic qualifications. The mean time spent engaged in physical activity per day was  $69.21 \pm 24.46$  minutes and 70% of users reported a frequency of two or three times a week.

### Instrument

A number of instruments were used. The EPOD 2 questionnaire (Nuviala et al., 2013) is made up of three Likert type scales which range from 1 (totally disagree) to 5 (totally agree). This scale was used to measure a number of dimensions. Namely, perceived quality was estimated according to six factors (technical, services staff, equipment, space, communication and activity) and 20 items. Satisfaction (a single factor; four items) and value of the service (a single factor; one item) provided the final dimensions. Reliability of the instrument measured using Cronbach's alpha following the implementation of field work,

was .820 for the scale describing quality and .967 for the scale describing satisfaction.

The scale of future intentions (FI) of sport service users was also used (Nuviola et al., 2014). This Likert scale is formed by 10 items which are rated on a Likert type scale ranging from 1 to 5, pertaining to three dimensions: Loyalty (5 items), reaction to prices (2 items) and response capacity (3 items). Reliability of this instrument measured using Cronbach's Alpha following the completion of field work was .767.

Finally, the subjective loyalty item of the Net Promoter Score (NPS) (what is the probability that you would recommend the present sport centre to a relative/friend?) was used, as has been proposed by Reichheld (2003). In this case, responses are collected on a Likert scale running from 0 ('would never recommend it') to 10 points ('would totally recommend it').

## **Procedure**

Those responsible for running the organisations that participated in the present study were informed of the objectives and aims of the research. The research was carried out after obtaining approval of the organisations. The study design considered throughout the Spanish legal framework which regulates the protection of personal data in accordance with the Constitutional Law 15/1999. The fundamental principles established in the Declaration of Helsinki were also taken into account at all times (revised in 2013, Brazil). Informed consent was obtained from all study participants before conducting the field work. This was then carried out using the self-administered questionnaire in the presence of a researcher who administered the measurement items. The time dedicated to complete the questionnaires was approximately 10 minutes.

## **Data analysis**

In the first step, bivariate Pearson correlations were performed between the future intention of sport service users scale and the NPS item, with the objective of determining convergent validity of the NPS.

Following this, confirmatory factor analysis (CFA) was performed on the studied models using the statistical program AMOS, with the objective of testing the stability of the models. Maximum likelihood estimation was the estimation method employed. In order to evaluate goodness of fit the following indicators were reviewed: chi-squared statistic ( $\chi^2$ ); the ratio between  $\chi^2$  and the number of degrees of freedom ( $\chi^2/df$ ); model fit indices of absolute adjustment (goodness of fit index [GFI], root mean square residual [RMR] and root mean square error of approximation [RMSEA]); indices of incremental adjustment (Tucker Lewis index [TLI], comparative fit index [CFI] and incremental fit index [IFI]). RMSEA and RMR values of < between 0.5 and 0.8 are considered acceptable. In the case of GFI, CFI and TLI, values are considered acceptable when higher than 0.9 (Schermelleh-Engel, Moosbrugger, & Müller, 2003). Lower values for the AIC and ECVI indices indicate better

model fit (Weston & Gore 2006). With regards to quotient values calculated between  $\chi^2$  and df, a model is considered to be perfect when the quotient is 1.0, with ratios under 2.0 reflecting very good model fit and values under 5.0 being considered acceptable (Hu & Bentler, 1999; MacCallum et al., 2001; Yuan, 2005).

Finally, regression coefficients (standardised and non-standardised) of the existing relationships identified in the models were calculated.

## RESULTS

### Convergent validity

In the first instance, with the aim of testing the validity of the NPS as a measure for estimating the loyalty/allegiance of sport service users, a correlation between the NPS, the future intentions scale (FI) and the three dimensions described by the FI, was performed. The outcome highlights a positive and significant correlation between the NPS and the FI scale, and with the dimensions describing loyalty and price. The strongest correlation was seen between the NPS and the factor describing loyalty from the IF scale. The results demonstrate validity of the item when measuring the loyalty of sport service users (Table 1).

**Table 1.** Mean scores for the Net Promoter Score (NPS) and the future intentions scale (IF) and its dimensions, and intercorrelations

	Mean	1	2	3	4	5
1 NPS	7.79±1.43		.703**	.385**	-.054	.489**
2 Loyalty	5.23± 1.07			.488**	.056	.732**
3 Price	3.70±1.34				-.019	.749**
4 Response	4.57±1.26					.529**
5 Future intentions (FI)	4.50±.82					

\*\* p<0.001

### Stability of the models

As can be seen below (Table 2), stability of the two experimental models has been assessed. The first model relates quality (six dimensions), value, satisfaction and the NPS (model 1). The second model relates quality (six dimensions), value, satisfaction and future intentions (three dimensions) (model 2). The results verify adequate stability and good adjustment of both models.

**Table 2.** Indicators of adjustment for the confirmatory factor analysis

	RMR	RMSEA	GFI	IFI	TLI	CFI	$\chi^2$	df	$\chi^2/df$
Model 1 (NPS)	.049	.033	.950	.982	.978	.982	455.946	264	1.727
Model 2 (IF)	.070	.036	.929	.970	.965	.970	928.717	508	1.828

### Comparison of the information provided by the models

Results from the studied models are shown in Table 3. The data show that the dimensions describing the perceived quality of technicians, space, activity and communication, display a direct significant relationship with loyalty when measured using the NPS. Further, the data can be seen relating future intentions, defined according to three dimensions (loyalty, price and response), with quality, value and satisfaction. The dimensions pertaining to technicians, space and communication show a significant direct relationship with loyalty when measured using the future intentions scale. The dimensions value and satisfaction both equally predict loyalty. In reference to the dimension describing the ability to adapt to price changes, the results highlight that a significant relationship exists between value and satisfaction. Finally, the capacity for response dimension has just one antecedent, which is the dimension describing the quality of technicians.

**Table 3.** Standardised and non-standardised regression coefficients, and significance level of the models.

Relationships Model 1	Beta	Estimate	P	Relationships model 2	Beta	Estimate	P
NPS <--- Technicians	.109	.184	.005	Loyalty <--- Technicians	.090	.087	.010
NPS <--- Spaces	.190	.303	***	Loyalty <--- Space	.149	.134	.002
NPS <--- Equipment	.058	.109	.231	Loyalty <--- Equipment	-.016	-.017	.712
NPS <--- Activity	-.120	-.346	.004	Loyalty <--- Activity	-.018	-.030	.627
NPS <--- Communication	.099	.223	.037	Loyalty <--- Communication	.107	.139	.012
NPS <--- Personal	.010	.018	.835	Loyalty <--- Personal	.033	.034	.436
NPS <--- Value	.128	.178	***	Loyalty <--- Value	.255	.203	***
NPS <--- Satisfaction	.332	.575	***	Loyalty <--- Satisfaction	.406	.403	***
				Price <--- Technicians	.078	.088	.119
				Price <--- Space	.059	.062	.385
				Price <--- Equipment	-.036	-.045	.571
				Price <--- Activity	-.043	-.083	.421
				Price <--- Communication	.089	.135	.154
				Price <--- Personal	.014	.016	.828
				Price <--- Value	.241	.223	***
				Price <--- Satisfaction	.218	.252	***
				Response <--- Technicians	.129	.177	.019
				Response <--- Space	-.079	-.101	.272
				Response <--- Equipment	-.113	-.172	.093
				Response <--- Activity	.060	.140	.302
				Response <--- Communication	.050	.092	.435
				Response <--- Personal	-.029	-.042	.659
				Response <--- Satisfaction	.044	.062	.515
				Response <--- Value	-.084	-.094	.097

## DISCUSSION

Organisations providing services have a need to better understand the appraisals made of their services by their clients in order to design strategies which increase loyalty. For this purpose, various tools have been created which enable the opinions of clients to be probed. Some of these tools have the aim of better understanding the loyalty of business clients, with the possibility of using instruments composed of one item or multifactorial instruments composed of many items. As a result, the first objective of the present work was to determine the convergent validity of the NPS as an instrument capable of measuring the loyalty/allegiance of sport service users. The obtained result was satisfactory, in that the measure could be considered as a valid instrument for understanding the loyalty of users. Unfortunately, no research studies exist which have provided information about the nature of effects with regards to the dimensions of quality, value and satisfaction within the scope of loyalty and future intentions towards sport service use. Thus, the second objective was to examine the information provided by two models which evaluate loyalty of sport service users, one using the NPS and the other using a multifactorial scale of future intentions. The results were satisfactory in both cases, with the information provided in the second model that related quality, value and satisfaction with future intentions through a multifactorial instrument, being more informative and enabling better decision making by business management.

The obtained results demonstrate that the two instruments are valid for measuring the loyalty of sport service users. The two instruments, the NPS and the FI scale, are moderately and significantly correlated, with an R of .489, which demonstrates adequate convergent validity. When taking a more detailed approach to the analysis by considering the dimensions that constitute the FI scale, namely the dimensions of loyalty, reaction to price changes and response capacity, a correlation between the NPS and the dimensions of loyalty and reaction to price is observed. No relationship was found with the dimension describing response capacity.

The correlation of the NPS with the loyalty dimension was high, with an R of .703, which demonstrates that both measure the same concept to a similar extent, this being allegiance of sport centre users. The NPS and the loyalty dimension can be used to measure the same concept, though it is necessary to remember that the design of a single-item makes it an unreliable measure, due to the high possibility of random error. At the same time, it is improbable that a single item encompasses the breadth of a complex concept, considering the limitation that it is only capable of classifying individuals according to two categories. This is to say, it is incapable of showing the extent or nature of differences in a spectrum or dimension (Jaju and Crask, 1999). The minimum number of items for a scale that explores a single domain or factor is considered to be 3 (Streiner, 1994). The correlation of the NPS with the price dimension was weaker than that which existed with loyalty, this demonstrates that they measure similar yet different aspects. Thus, it is important to keep in mind that the NPS measures loyalty, whereas the price dimension rates the potential to adapt to variations in price for the service (Nuviala et al., 2014).

Following on from this, we proceeded to evaluate the stability of the models when relating the dimensions of technical quality, services staff, equipment,

space, communication and activity with the constructs of value, satisfaction and loyalty/future intentions. Acceptable values were obtained for the set of measured indices (Schreiber, et al., 2006), from which it can be concluded that both models were well adjusted.

Observation of the outcomes obtained for both models, it can be concluded that very few differences exist with regards to loyalty. Both models present similar outcomes, even when perusing the beta-values. The only exception is for the dimension of activity quality, which does not appear to be directly related in model 2. This outcome has already been highlighted by Pérez-Ordás et al. (2019) in schoolchildren. Nonetheless, despite this contradiction, it is necessary to shine a light on the impact of the activity dimension on user satisfaction (Haro-González et al., 2018; Nuviala et al., 2015) and the subsequent impact of this on loyalty (Fernández-Martínez et al., 2020; García-Pascual et al., 2019).

Model 2, that which related quality, value and satisfaction with the dimensions that shape future intentions (loyalty, adaptation to price, response capacity), provided more information than model 1, which only counted with a dimension constituted by a single item. The results of model 2 permit better understanding of whether a relationship exists between quality, value and satisfaction with adapting to price changes and the response capacity that sport users may have. As indicated by the results, in order to achieve a better adaptation to variations in price, the dimensions of perceived value and satisfaction are particularly relevant. Perceived value is the construct that presents the greatest beta value. This result should be considered as normal because both dimensions measure effort, whether this be monetary or otherwise, which the client perceives to have invested in order to receive the service. Satisfaction is also related with adapting to price changes. The relationship between value and satisfaction with future intentions, singularly understood as loyalty, has previously been demonstrated in a sample of sport spectators (Calabuig-Moreno et al., 2016). Studies developed in other sectors have also outlined the relationship of value and satisfaction with the dimension describing adaptation to price change (Zhang and Bloemer, 2008). Given the results of the present work, considerations of value and satisfaction should begin to form basic pieces of the economic questions related with the future intentions of sport service users.

Finally, response capacity, or disposition towards making complaints and/or claims against the service, presented only one relationship with the dimension describing technicians. None of the other dimensions of quality, nor the constructs of value and satisfaction, presented relationships with the dimension describing future intentions. It appears that the relationship established between the sport technician and the client is a determining factor in this respect. Unfortunately, the literature relating to the study of dissatisfaction and complaints is scarce, despite the importance of this topic for business companies. If the client does not complain, the likelihood of them abandoning the service is greater than in situations in which they do complain and the response of the business/provider is satisfactory (Harris et al., 2006). The studies conducted on this topic have been carried out in the fields of the following services: hotels, restaurants, financial entities and telephone services

(Magnini et al., 2007; Michel and Meuter, 2008). For this reason, it would be interesting to continue investigating along these lines.

## CONCLUSIONS

In conclusion, both the NPS and the future intentions scale adapted to sport services are valid tools for measuring client loyalty to these types of services, although the second model provided more information relevant to the adoption of future decisions.

The future intentions scale provides greater information, given that it enables a greater understanding of the way in which the different quality dimensions relate, in addition to value and satisfaction with the different dimensions that make up this complex construct (Pollack, 2009; Zhang and Bloemer, 2008). Value and satisfaction are determinants of the future intentions of sport service users. Knowledge about these evaluations is key when it comes to increasing client loyalty and allegiance.

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