



## An investigation of the psychometric properties of the customer loyalty questionnaire in sport

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### **Abstract:**

*Basis of the marketing is based on customer. One of the marketers purposes the customers' loyalty and guarantee is through emotional relationship creation with them. Nowadays with regarding to the technology new techniques, providing different information is facilitated for customers and therefore marketers are in attempt for customers attraction and their commitment and maintaining. The purpose of the present study is the analysis of the questionnaire psychometric characteristics and customers loyalty in sport brands customers' society. The questionnaire was conducted to a sample of 340 customers of sports brands. Psychometric parameters were measured with appropriate statistical methods. The results of the factor analysis and Varimax rotation revealed three factors of customer loyalty. The*

*results confirms that questionnaire structure have acceptable associated to the data and confirmed all indicators of the model. Four indexes with first factor had correlation more than 0.49, three indexes on second factor had factor loading more than 0.527 and three indexes on third factor had factor loading were more than 0.434. Reliability (0.814) was satisfied. Regarding to the measured psychometric indexes, this questionnaire can be appropriate for sport brands customers' loyalty evaluation.*

**Key words:** Loyalty, Reliability, Sport brands, Psychometric

## Introduction

In nowadays competitive world, provided services have more similarity from competitors' brands daily and hardly can surprise the customers with completely novel service providing because the most innovative service emulates very fast and provided for markets (Beerli et al, 2004). Nowadays customers' loyalty and effective communication with it obtained special position, because customers are from the organization important resources which fixated for brand and have long presence beside the brand (Yoo, 2008). Customers' loyalty, is an important concept in marketing, but it is wonderful that there is no accepted general meaning, for example Dick and Basu (1994) introduced the customers' loyalty as the relationship stability between consuming demands and buying repetition. Jones and Sasser (1995), knows it as the customers' willing for service and products renewed purchase (Sheu et al, 2009). Dick and Basu (1994) stated that loyalty in marketing include the customers commitment for renewed purchase or similar behaviors about the brand which with second coming for purchase, service and other similar behaviors is just like the advice and mouth to mouth commercial (Dick & Basu, 1994). Totally we can say that loyalty means that the customer won't leave the brand despite of having several options. Of course this

problem necessarily doesn't mean that brand provide the best product/service or the customer have no other choice, even it is possible that customers have some problems with brand, but he/she wants to neglect other options and continue to use it because he/she thinks that brand grants him/her more spiritual and material value. Loyal customers spend more money, more purchase, and purchase more times from brand and advice to more people to use from brand. Nowadays regarding to the marketers facing challenges such as competitions for maintaining the paramount between competitors, cost changes, customers' presence with tact variety and etc. marketers found that one of success ways is the pre-customers' preservation instead of effort in customers' attraction (Li et al 2008). Loyal customers regarding to their experience can evaluate and purify the new data about brand.

Most of the studies in the field of customers' loyalty focused on loyal behaviors occurrence. For example, Churchill (1942) evaluated the loyalty behavior through purchase repetition from brand, Brody & Cunningham (1968) through purchase amount from brand and Anderson & Sullivan (1993) through referral times to the brand, advisement to the others and purchasing sub-products. According to the Guirong (2011), loyal customers neglect the negative and positive experiences, because despite of having strength loyal spirit, even negative experiences won't lead to changing their behavior. Of course authors believe that loyalty to the brand have different reasons. Oliver (1997) knows the effectiveness of commercial environment or oral advisements to the others as the most important reasons of customers' loyalty. Meaning of the oral advisement to the others, is the informal communication and friendship relationship between eternal customers and stating the advantageous and brand's products/service application and reliance attraction (Toro et al, 2002). Oral advisements have considerable effect on customers' decision for further returning. In the other hand, brand's more popularity leads to increase the

customers' willing for advising the brand to the others (Ehsani & Javani, 2012). According to the Yang and He (2011), purchase behavior changes according to the customer's experience level. More ever, customers' positive emotions rather than brand during purchase increase his/her strict advisement probability to the others. Willing and purpose of purchasing can lead to brand advisement or the organization to the others, lack of brand changes, is the customers' loyalty evaluation in brand cost and or lack of purchasing similar products (Mridula & Mehraz, 2009). The other important factors, is the customers' loyal evaluation. Jones et al stated that (1995), customers' loyalty is measurable in three aspects: 1) further purchasing willingness, 2) initial behavior, 3) second behavior (Schmitt, 1999b). Kristensen et al (2000) believe that loyalty is made from 4 indexes: 1) further purchasing willingness, 2) willing for advisement to the others, 3) respect to the good's cost, 4) willing for sub-products and related to the brand. Loyalty originates from the loyal behavior and tendencies which meaning of the loyalty tendencies is the loyalty in observation and cost acceptance and meaning from loyalty behavior is the repetitive purchasing and advisement to the others. Zena and Hadisumarto (2012) considered four indexes for customers' loyalty: customers' tendency for further purchase purpose, cost acceptance, willing for brand advisement and willing for brand sub-products purchase. With combination of mentioned indexes and factors, author analyzes the customers' loyalty by 3 indexes as the following: 1) tendency for further purchase, 2) exaltation from products and wiling for purchase it for others and 3) wiling for sub-products purchase and related products to the brand.

- 1) Willing for further purchase: whenever the customer requires a service or product, always purchase from one special brand for a product or a service.
- 2) Exaltation from a product and willing for advising it to the others: if a customer satisfy from a special service or

- product, have willing for advising it to the others or family and supports strictly from brand.
- 3) Willing for sub-products purchase and related to the brand: if the customer satisfy from a special product or service, will have willing for purchasing a product or a similar service and related to the brand.

In sport there are loyal fans that they have prejudice than special team or an athlete, and they follow the related items. So according to the authors' comments, Parto fundament (20-80 law) is verified for football fans, means that 20% of loyal fans, provide the 8% of sport income. Therefore despite of loyal fans, clubs' long time and stable benefit will be assured (Ehsani & Javani, 2012). Lager (2010) believe that loyalty to the sport teams is like the customers' loyalty to the non-sport brands. If in sport managers can't understand the fans' self-devoting, can't do their jobs. Loyal customers will lead to increase the auditions' tendency toward special team without managers' help and better service providing (Lager, 2010). If the customers are loyal to the brand, they will pay more for it which can result that the organization reaches the stable competitive advantageous (Ehsani & Javani, 2012).

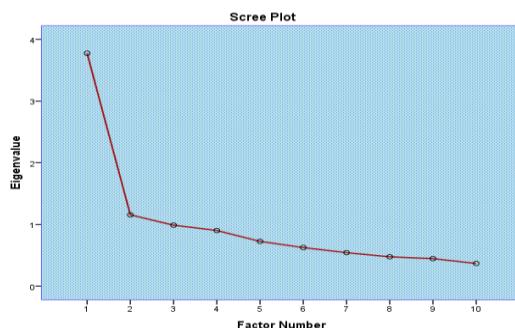
Mentioned studies show that organization knows that the customers' loyalty requirement for their success is necessary. Regarding to the role and importance of sport in economy and culture and etc. and also need for an instrument which can measure the effectiveness of customers loyalty in industry, evaluation and measurement necessity will be cleared. Maybe we can say that customer's loyalty in sport purposeful and ordered study requirement after understanding the importance of the study, is the availability to an instrument which is effective in factors' identification. Regarding to these contexts and coordinated with literatures, purpose of the present study is the analysis of the customers' loyalty questionnaire psychometric features in sport.

## Method

The present study is a correlation type and from the purpose view is a developmental study. The population includes the sport brands which the statistical sample was chosen level randomly between them. Between 350 distributed questionnaires, 340 questionnaires were analyzed. Tabachnick & Fidell (2001) believe that 300 tests are enough for analyzing the factor loading (sarmad et al, 2009). 50% from responders were male and 50% were female. 20% of responders have less than 2 years, 30.88% between 2 and 5 years, 31.18% between 6 and 9 years, 9.71% between 10 and 15 years and 8.24% more than 15 years purchasing experience from brand. 17.06% (58 persons) had business, 38.82% were student, 25.59% were employee, 6.47 were faculty and 12.06% were sport coaches. Study instrument include the empirical marketing self-organized questionnaire of sport brands. In order of finalizing the questionnaire by using from measurement classic theories the following steps were done: questions analysis, test stability analysis, test validity analysis. For analyzing the validity in the present study, structure validity was considered. In order of structure validity attainment in this study, we analyzed through verification factor analysis. Questionnaire includes 10 items and 3 sub-scales of tendency for further purchase, praise and advisement to the others, tendency for brand sub-products purchase. Responders rank their responds on a 5 items Likert from strongly agree (5) till strongly disagree (1). Data analysis method includes the discovery factor analysis, conformation factor analysis, Pierson correlation coefficient and multi regression which all data were analyzed by using from SPSS software: SPSS (21.0) and LISREL (8.7).

## Finding

For discovering the customers' loyalty components at first we used from discovery factor analysis. Before performing the factor analysis, meaningfulness of the correlation matrix should be analyzed. For evaluating the correlation matrix we can use from two sampling-amount qualification indexes (KMO) and chi-square test or Bartlet test (Sarmad et al, 2009). Regarding to the meaning level (0.01), KMO test (0.824) and meaningfulness of Bartlet test, we obtained three factors and regarding to the sampling qualification and meaningfulness of Bartlet test, data correlation matrix for appropriate factor analysis and factor analysis performance base on the correlation matrix will be justifiable. All of values related to the questions correlation are higher than 0.30 toward main axis factor founding which indicates the high correlation between components and the whole test and appropriateness of the factor analysis. For decreasing the common variance between questions, questions that in more than one factor had the factor load more than 0.4 were eliminated. Base on the percentage of variance factors and scree plot (figure1) three selection factors were rotated by using from Varimax method. The second step of factor analysis relates to the initial factor extraction. For identifying that the self-attainment includes which factors, at first questionnaire initial factors were extracted.



**Figure 1. Screen plot to find the number of factors for customer loyalty**

For extraction of factors we used from correlation matrix from main axis factor finding method, because the purpose of the variance whole specification was correlation matrix. According to the Keiser criteria, factors that have special value more than 1 can be extracted as the factor which according to the results, 3 factors have special values more than 1 which totally determine the 43.05% of the total variance. 18.76% of the total variance of first factor, 13.00% by the second factor and 11.29% also third factor is identified. In the following scree plot is depicted.

By noting to the figure 1 we can see that 3 factors from one questionnaire set are higher than the line slope and other factors approximately are in one area and close to each other. Therefore we can conclude that 3 maker factors in the study instrument are emphasized. Then one questionnaire question factor loading in 3 extracted components analyzed before rotation. According to the results, at first one general factor is observed and most of the questions have considerable factor loading on them. Because factor matrix didn't rotate and its factor loading didn't obtain a meaningful structure, we decided to use from Varimax rotation method. Data factor matrix after 5 testing rotation reached the best structure and questions combination.

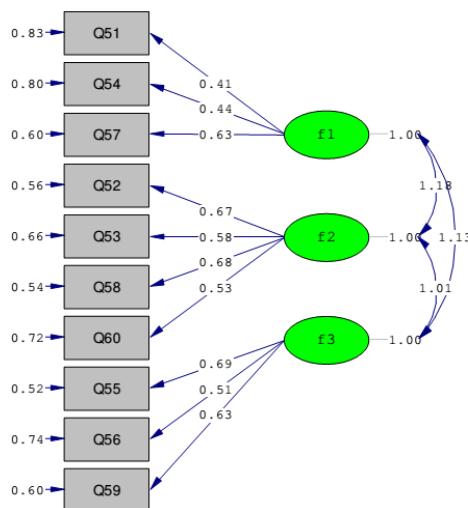
Generally after the related Varimax rotation to customers' loyalty, 4 indexes with the first factor have correlation more than 0.49. Question 52 index, have highest correlation with the first factor and the lowest correlation are related to the question 53. Totally 3 indexes on second factor had factor loading more than 0.527 and 3 indexes on third factor had factor loading higher than 0.434. Indexes conformity with pre-considered factors for customers' loyalty show that the first factor can be named as the "further purchase tendency" and respectively the second factor "praising and advisement to the others" and third factor "tendency for purchasing sub-products".

According to the results exploring factor analysis on this questionnaire's items, all of the items were fitted in the "further purchase tendency", "praising and advisement to the others" and "tendency for purchasing sub-products". For obtaining the structure validity in the study's sample we used from verification factor analysis and Lisrel software (8.7). In table 1 measurement model parameters for each question are reported:

**Table 1. Confirmatory factor analysis for customer loyalty**

Square multiple correlation	t**	$\beta$	Question	Variables	
0.17	7.56	0.41	Performance of brand is better than its rival	willing for sub-products purchase	
0.2	8.19	0.44	I collect the brand's sub-product		
0.4	11.38	0.63	I commit myself to purchasing the product/service of brand		
0.44	13.02	0.67	Brand is my only choice to purchase		
0.34	11	0.58	I repurchase the product/service of brand	tendency for further purchase	
0.46	13.37	0.68	I will purchase the product/service of brand in spite of increasing in its price		
0.28	9.94	0.53	If there is another brand with the same quality, I will purchase this brand		
0.48	13.12	0.69	I suggest the brand to my friends		
0.26	9.27	0.51	I like others know that I am a loyal customer of brand	exaltation from brand for others	
0.4	11.92	0.63	I inform others about the positive points of brand		

According to the results, average error root for approximate squares is 0.078, practice smoothed index is 0.94, practice fitness index is 0.91, and chi-square statistic meaningfulness is 245.29 ( $p=0.001$ ). All of indexes are desired and model with data have good practice and this indicates the accommodation of items with theoretical structure. In figure 2 the verification factor analysis includes the factor loads and their errors values.



Chi-Square=245.29, df=32, P-value=0.00000, RMSEA=0.078

**Figure 2. Confirmatory factor analysis, including load factors and the amount of mistakes**

**Instruments reliability:** reliability amount in the present study was measured through Cronbach's alpha and equals to be 0.814. in order of questionnaire stability measurement from statistical indexes, one set of questions which requires just one performance of test form. Correlation of each item with questionnaire total score is measured and reported which all indicates the questions acceptance coefficient. Also questionnaire stability coefficient after elimination of each items is also measured again. When the items are eliminated, questionnaire complete stability amount decreases ir wont show a meaningful change which these items obtain the customers' loyalty structure measurement. It should be noted that stability measurement is performed after the questions' verification factor analysis.

## Discussion

Role and importance of loyalty and customers' active cooperation with brand in today's modern world, makes the

necessity for reaching the valid measurement instrument for evaluating this variable between sport customers. Regarding to the main policy of this study, means the analysis of the scale psychometric features and analysis of each items regarding to the factor loading and Cronbach's alpha and also concept of that item, finally guided the author toward founding 3 sub-scales. Each of the 3 sub-scales had enough reliability which can consider them as the effective factor on customers' loyalty. Conceptual reliability analysis of these aspects indicates their discovery value and their presence in the questionnaire as the structures that should be noted and even in future researches should evaluate accurately, will be justified. Scale reliability reported to be 0.814 which shows the valid desired amount. In the main factors analysis level also 3 sub-scales of sampling qualification (KMO) reported to be equal 0.824. Cerney & Kaiser (1977) believe that when KMO value is more than 0.6, we can perform the factor analysis and as this value will be more, qualification and appropriateness of the sampling will be more (Barbara & William, 2005). Regarding to the sampling quality's amount, all of the sub-scales have positive and high correlation with the customers' loyalty questionnaire.

Barbara and William (2005), stated that in the verification factor analysis, special theoretical patterns are compared with each other and actually the verification factor analysis is a useful methods for revision of questionnaires. Author used from verification factor analysis for analyzing the questionnaire structure validity in this study. According to the results, AGFI and GFI indexes are more and equal to be 0.90 and RMSEA is less than 0.10. From the Bentler and Bonnet viewpoint (1980) when the fitness goodness indexes and justified fitness goodness is more than 0.90, analysis shows appropriate fitness from model. Also when the approximate error variance measurement square is less than 0.10, analysis reports acceptable fitness (Halliday & Coles, 2008). In verification factor analysis, numerical amounts are shown

between factor and factor loading indicators regarding to the Beta weights. T-values between questions and structures in all items are meaningful from the statistical viewpoint and this means that the relation between questions and related structures is logic. Moreover, t-values shows that all of questions in related structures factor are measured and customers' loyalty questionnaire have validity. According to the Christsen (2000) about the customers' loyalty it is considered that customers' loyalty factor include three tendencies toward further purchase from brand, praising the brand and advising to the others and willing for purchasing sub-products. Factor analysis results in this study is conformed to the Christsen (2000), Obonyo (2011) and Usakli and Baloglu (2011).

Also t-test results of factor indicates that all of the questions (items) have the factor appropriate prediction strength, so that 4 indexes with tendency toward the further purchase have higher correlation more than 0.49. Totally 3 indexes of praise and advisement to the others have factor loading is more than 0.527 and 3 indexes toward the sub-products purchasing have higher factor loading more than 0.434.

Every study's basic is the usage from stable instruments. Present questionnaire stability obtained 0.814 which indicates the high internal stability. This result indicates that customers' loyalty questionnaire is a valid instrument which helps the sport researchers in sport brands customers' loyalty evaluation. Obonyo (2011) reported his customers' loyalty questionnaire's stability to be 0.873. Soo (2005) in a study about the empirical marketing in Strasburg restaurants coffees in Taiwan obtained the high internal stability for customers' loyalty (Hsu, 2011). Yuan and Woo (2008) in another study on that restaurant, paid to analysis of the empirical marketing relationship and satisfaction and customers' loyalty of Strasburg restaurants in Taiwan and reported the customers' loyalty questionnaire's stability to be 0.807 (Yuan & Wu, 2008).

Nigam (2012) in his study reported the self-stability of the tendency component for further returning to the brand customers' loyalty questionnaire, to be 0.74 (Mridula & Mehraz, 2009). Yang and He (2011) in his study reported the customers' loyalty questionnaire to be 0.739 (Yang & He, 2011). According to the study results of Nasermoadel et al (2013) further returning to the brand stability obtained to be 0.779 (Nasermoadel et al 2013). Lee and Chung (2011) in a study about the Taiwan's tourists reported the customers' loyalty questionnaire stability to be 0.926 (Lee & Chung, 2011). Magnati et al (2012) in a study about cell phones' customers, reported the customers' loyalty questionnaire stability to be 0.719 (Magnati et al, 2012). Alkiani et al (2013) in a study on the social media users, reported the customers' loyalty questionnaire to be 0.764 (Alkiani et al, 2013).

Obtained results from factors stability and conformity analysis had been paid logically to the supporting from empirical marketing questionnaire, brand strength and sport customers' loyalty.

In the following we can state that, it is better that the managers look for ways for customers' satisfaction attraction and following it for the loyalty avocation. For obtaining the customers' stable loyalty, customers' satisfaction preservation is not alone enough but creating a memorable experience from brand and maintaining the continual communication with customers and its reliance attraction will be necessary. Managers by taking encourage and incitation methods lead to customers' further returning to the brand. For example service provides with higher quality rather than competitors, more communication with customers, granting discount cards (Ekhlasi, 2012).

Finally according to the study results customers' loyalty questionnaire for sport brands is a valid and trustful scale. Generally, according to the obtained results from the study, the authors attended in sport areas can use from this questionnaire

as the appropriate instruments in sport business and obtain acceptable results. Utilization of this questionnaire can be a solution for many studies which in them factors' measurement related to the loyalty and customers' willing for sport service/products have special value.

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