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A RELIABILITY TEST USED FOR THE DEVELOPMENT OF A LOYALTY SCALE

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Abstract

The development of a loyalty model involves the construction of a proper research instrument. For the loyalty model of the clients for financial services, the pre-testing of the research questionnaire represents a significant stage. This article presents the methodology used in this stage for testing the reliability of a loyalty scale. Firstly, this implies choosing the appropriate scales for each variable included in the suggested research model. Secondly, the internal consistency for each of these scales is measured as an indicator of their reliability. The reliability analysis described represents an essential stage in building a measurement instrument for a loyalty model.

INTRODUCTION

The first stage in the study of loyalty related to financial services is the documentary study. In regard to this matter, we have carried out a synthesis of the definitions of loyalty in relation with the services and the *business to business* field, as well as an analysis of the current stage of knowledge about this concept. In this stage, the loyalty models developed in the specialty literature have also been described. The loyalty models that were analysed in the *business to business* field were considered to be important for this research, because financial services, due to their specificity are a part of this category. The analysis of the models developed in the research literature, emphasise the determinants that influence loyalty and the relations between them and loyalty. It can be noticed from the analysis of the research in this field that there have been taken into account the most frequently used variables presented in the previous studies (*Service Quality, Trust, Satisfaction, Commitment*). The purpose of this enterprise consists of choosing the appropriate scales for each variable included in the suggested research model.

THE DEVELOPMENT OF AN LOYALTY MEASURING SCALE

In table 1, the scales used in the specialized literature are shown which are applied to the *business to business* field and to the financial services. These segments of interest have been chosen because they reflect the specificity of the activity of providing financial services.

The scale used has been taken from the authors Caceres and Paparoidamis (2005), who developed the *Loyalty* model on two dimensions: *Service Quality* and *Relationship Quality*. This model is considered appropriate and it has been empirically tested in the *business to business* sector.

For the *Loyalty* variable we use a five item scale focused on the probability to collaborate with the same service providers and on the recommendations made to the business collaborators. It has been tested in the business to business field by Lam, Shankar, Erramilli and Murthy in 2004.

In terms of functional dimension, the construct *Service Quality* has been measured by means of the items used in the specialised literature for the latent variables *Commercial service, Administrative service* and *Service delivery*, whereas the technical aspects (*Service provision* variable) have been made operational after an in-depth discussion with

the experts in the financial field. The scale used has been taken from the authors Caceres and Paparoidamis (2005).

For *Communication* we have chosen a scale tested by the authors Dwaine, Coelho and Vilares (2006), on the market of *business to business* services. This scale has been adapted according to the one used by the researchers Morgan and Hunt (1994).

Trust is measured using a scale adapted by Caceres and Paparoidamis (2005) for the *business to business* sector, designed according to the one used by Morgan and Hunt in 1994.

For *Satisfaction* a single item is used, focused on the perception of the entire relationship. Using a single item to measure the concept represents a limitation compared to the multi-item scales. However, Caceres and Paparoidamis (2005), after analysing the specialised literature, drew the conclusion that, the use of the multi-item scales to measure global satisfaction, may decrease and not improve the measurement quality. Moreover, the authors Yi and La (2004) compared the degree of trust of several satisfaction scales and drew the conclusion that the ones using one item are more acceptable.

For the latent variable *Costs of changing to a new provider* we have used a scale adapted to the specificity of financial services taken from the researchers Bell, Auh and Smalley (2005).

The measuring scale is the Likert type one which contains answers from 1 (Total Disagreement) to 10 (Total Agreement).

After testing the uni-dimensionality of each factor and before testing the hypotheses within the structural model, reliability and validity of constructs are verified (De Wulf, Odekerken-Schroder and Iacobucci, 2001). Reliability and validity represent concepts that are tightly connected, but still different. Thus, a measuring model can be consistent or reliable, but not precise (valid) for what it wants to measure. Consequently, an instrument is valid if it measures what it wants to measure, and reliability refers to the stability of the obtained results, meaning whether the same data is obtained in the case of repeated measurements.

The validity of a construct implies three important aspects (Zikmund, 1994). Firstly, the construct must be analysed as a correct reflection of the field of the observed variables. Then, the construct should represent well the alternative measures. Lastly, the construct must be rendered as being in connection with other constructs of interest for the analysed field. In order to consider these aspects, the scales analysed in this article meet the validity condition.

RELIABILITY MEASUREMENT METHODOLOGY

Malhotra believes that this concept refers to the extent to which a scale produces consistent results, if repeated measurements are made on the variables included in the analysis. Testing the reliability of the measuring models is made for the purpose of removing errors and prejudices (Yi & La, 2004). For this purpose, two dimensions can be followed: repeatability and internal consistency. The first dimension can be investigated by using the re-testing and alternative testing methods (Zikmund, 1994). These methods imply applying the same instrument, on two different occasions, to the same batch of respondents, in similar conditions. The similarity between the two tests can be examined by using a correlation coefficient. Malhotra (1996) identifies two problems in the case of using these methods. Firstly, the participation in the initial test influences how the person answers to the second test. The second problem is related to the fact that, in time, respondents can change their opinions. Due to these inconveniences, we believed that these are not appropriate to be used in this article.

Consequently, the second dimension, internal consistency, is analysed to test the overall reliability of a scale, where several items are added up to form a total score (Malhotra, 1996). If they are reliable, these items indicate the consistency of the measured concept.

The reliability of the measuring models of the constructs that form the loyalty model is tested with the help of the Cronbach-Alpha coefficient in this article and it represents a significant stage to build a loyalty model of clients of financial services.

THE ESTIMATE OF THE MEASURING SCALE RELIABILITY

The reliability of the results of a research study is proven to the extent to which its results are the same when the examined situation is repeated (Malhotra, 1996).

To estimate the reliability of the multi-item scales used in the quiz, we measure the internal consistency of the results by calculating the Cronbach-Alpha coefficient. Cronbach-Alpha is the mathematic equivalent of the average of all possibilities of split-half estimates for the same sample (Malhotra, 1996). The coefficient is based on the inter-correlations between the scale items. The higher they are, the higher the coefficient will be. To be able to consider a scale as reliable, the researchers Schumacher and Lomax (2004) recommend an optimum value of the Cronbach-Alpha coefficient of 0.7. Malhotra (1996) thinks as sufficient the threshold of 0.6. Other researchers believe a value ranging from 0.6 and 0.7 shows an

acceptable level of reliability, and a value higher than 0.8, a high level (Healy & Chad, 2000).

The values of the Cronbach-Alpha coefficient range within the interval 0 and 1. A value closer to 1 shows higher consistency. Nonetheless, very high values, over 0.95 are considered as „questionable“, because it is considered that the items don't catch different aspects of the variable one wants to measure.

Interpretations of the Alpha coefficient (AERA, 1999):

-interval 0.6 – 0.7 – acceptable;

-interval 0.7 – 0.8 – good;

-interval 0.8 – 0.95 – very good;

-interval over 0.95 – danger to become redundant.

The reliability analysis represents an essential stage in building measuring instruments for the latent variables. In this study we have developed multi-item scales for the following latent variables: ***Loyalty, Trust, Commitment, Commercial Service, Administrative Service, Service Provision Communication, Service Delivery and Costs of Changing to a New Provider.***

Determining the reliability degree in a scale refers to accuracy. The validity of a scale is related to its accuracy. Thus, reliability does not also involve the scale validity. A reliable scale may have consistency, but this doesn't mean it can measure what it should measure. The consistency of the measuring instrument refers to the fact that if it is applied by the same person in different moments in time, the same results have to be obtained.

CONCLUSIONS

For the nine scales included in the research design, the reliability analysis carried out produced satisfactory results for the consistency level of the scales. In table 2, the values of the Cronbach-Alpha coefficient for each particular scale are shown. As one may notice, there are no scales with Cronbach-Alpha below the 0.5 level, which means that all scales have good consistency. For the scales underlined in table 2 ***Administrative Service, Communication, Costs of Changing to a New Provider***, the coefficient value does not exceed 0.9 but it is lower than 0.95, which means that the scales have higher internal consistency and they can be used for the development of a measurement instrument for a loyalty model.

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TABLES

Table 1
Scales used to measure loyalty in the B2B field

	Name	Item No	Authors
LOYALTY	Behavioural Intention Scale	4	Boulding, Kalra, Staelin & Zeithaml, 1993
	Behavioural Intention Scale	3	Zeithaml, Berry & Parasuraman, 1996
	Behavioural Intention Scale (recommendations-3 and buy-back intention -2)	5	Sirdeshmukh, Singh & Sabol, 2002
	Behavioural and Attitudinal Intention Scale	5	Cater & Cater, 2010
	Loyalty scale – B2B Services (recommendations-3 and buy-back intention -2)	5	Lam, Shankar, Erramilli, & Murthy, 2004
TRUST	Trust	5	Doney & Cannon, 1997
	Trust (B2B Services)	2	Caceres and Paparoidamis, 2005
	Trust (B2B RELPERF)	3	Lages, Lancaster & Lages, 2007
COMMITMENT	Trust (B2B Production)	3	Cater & Cater, 2010
	Commitment	5	Kumar, Scheer & Steenkamp, 1995
	Commitment	4	Morgan & Hunt, 1994
	Commitment (B2B Services)	2	Caceres & Paparoidamis, 2005
	Commitment (B2B RELPERF)	3	Lages, Lancaster & Lages, 2007
SERVICE QUALITY	Commitment (B2B Production)	3	Cater & Cater, 2010
	SERVQUAL Scale	10	Parasuraman, Zeithaml & Berry, 1985
	Perceived Service Quality Scale	7	Hartline & Ferrell, 1993
	Technical and functional quality – financial services	7	Sharma & Patterson, 2000
OF COSTS CHANGE	Technical and functional quality - B2B financial services	7	Bell, Auh & Smalley, 2005
	Technical and functional quality - B2B services	7	Caceres & Paparoidamis, 2005
	Costs of changing to a new provider	5	Jones, Mothersbaugh & Beatty, 2000
COMMUNICATION	Costs of changing to a new provider- B2B financial services	3	Bell, Auh & Smalley, 2005
	Costs of changing to a new provider- B2B	4	Liu A. , 2006
COMMUNICATION	Communication	7	Morgan & Hunt, 1994
	Communication - B2B Services	4	Dwaine, Coelho & Vilares, 2006

Note. Authors' synthesis.

Table 2
Values of the Cronbach-Alpha coefficient

Name Scale	Coefficient Cronbach- Alpha	Item No.
Loyalty	0.858	5
Trust	0.679	2
Commitment	0.872	3
Commercial Service	0.9	5
Administrative Service	0.904	4
Service Provision	0.645	6
Communication	0.939	4
Service Delivery	0.798	2
Costs of Changing to a New Provider	0.941	4

Note. Authors' calculations.