SUBJECT AREA: MARKETING

Validation of the Need for Social Interaction Scale between Customer and Service Provider

Validación de la escala de necesidad de interacción social entre cliente y prestador de servicios

Validação da Escala de Necessidade de Interação Social entre Cliente e Prestador de Serviços

Jesús Manuel López-Bonilla[1]
Luis Miguel López-Bonilla[2]

ABSTRACT

With the consolidation of the services sector in the global economy, we need to study further the relationship between customer and service provider. This paper analyzed the validity and reliability of the need for social interaction between customer and service provider. This scale has been made by Dabholkar (1996), from the ideas of Langeard et al. (1981). There are relatively few studies with this scale, therefore this construct should be taken into account in future research about service interaction. This study is based on a sample of 819 undergraduates. The results suggest that the Need of Social Interaction is a brief, simple and reliable scale.

Keywords: Service interactions. Service provider. Customer. Scale.

RESUMEN

Con la consolidación del sector de los servicios en la economía mundial, es preciso estudiar en mayor profundidad la relación entre cliente y prestador de servicios. Este trabajo analiza la validez y la fiabilidad de la escala de necesidad de interacción social entre empleados y clientes. Esta escala ha sido creada por Dabholkar (1996), a partir de las ideas de Langeard et al. (1981). Hay relativamente pocos estudios sobre esta escala, aunque este constructo debería ser tenido en cuenta en futuras investigaciones sobre la interacción de servicios. Este estudio se ha basado en una muestra de 819 estudiantes universitarios. Los resultados sugieren que la escala de necesidad de interacción social es un instrumento de medida breve, simple y fiable.

Palabras claves: Interacciones de servicio. Prestador de servicios. Cliente. Escala.

1. Doctor in Marketing from University of Seville – Spain. [lopezbon@us.es]
2. Doctor in Marketing from University of Seville – Spain. [luismi@us.es]
   Authors' address: University of Seville. Unit: School of Economic and Business Sciences . Department: Business Management and Marketing
   Avenida Ramon y Cajal, 1 – 41018 – Seville – Spain

RESUMO

Com a consolidação do setor de serviços na economía mundial, precisamos estudarmais a relação entre o cliente e o prestador de serviços. Este artigo analisa a validade e confiabilidade da escala de necessidade de interação social entre cliente e prestador de serviços. Essa escala foi criada por Dabholkar (1996), baseado nas idéias de Langeard et al. (1981). Há poucos estudos sobre esta escala, embora esta construção deve ser considerado em futuras pesquisas sobre a interação de serviços. Este estudo foi baseado em uma amostra de 819 estudantes universitários. Os resultados sugerem que a escala de necessidade de interacção social é um instrumento de mediçao de curto, simples e fiável.

Palavras-chave: Interações em serviços. Prestador de serviços. Cliente. Escala.

1 INTRODUCTION

With the consolidation of services in the global economy, studies to address and expand the understanding about the relationship between client and service provider are required (MILAN, 2007). Services consist of an interactive relationship involving customers at different levels of intensity and that is related to an intangible performance (ABDALLA et al., 2012).

Traditionally, service encounters are interpersonal interactions between an employee of an organization and a client (SUR, 2008). Until a relatively short time ago, studies on service encounters focused primarily on these human interactions between clients and service providers. For example, Kipnis (1991) stresses that literature is concerned, above all, about the specific types of social interactions between people and only recently begins to explore the role of technology as a means of avoiding the need to interact face to face. However, the increasing use of technology-based self-service has significantly changed the structure of relationships between the organization and the customer. The system of self-service is based on consumers transactions practically in the absence of the service provider, who is replaced by the use of a technology (LÓPEZ-BONILLA; LÓPEZ-BONILLA, 2006; 2013).

The need for interaction between employee and customer is a relatively new construct in the field of marketing, which appears in the eighties of the 20th century and is developed especially in the nineties. Its content focuses on the dynamics of the two parties of the service encounter: employee and client. Dabholkar (1992), its leading promoter in the field of technology services, says in a broad sense that the need for interaction is the desire to maintain personal contact with others during a service encounter. But in principle, it can raise the construct from a dual perspectives. On the one hand, it is possible to analyze the need for customer interaction and, on the other hand, it is possible to study the need for interaction with the provider of the service. From any point of view, there is no doubt that the need for interaction between client and employee is extraordinarily important. As Dabholkar (1996) indicates, the need for interaction has been modeled as a key factor influencing the quality of expected service. Using a system of technology-based self-service is not interesting for many consumers because they prefer to have an interpersonal contact the service provider. However, there are other consumers who may wish to use self-service technologies to avoid personal interactions.

The need for interaction between employee and customer has been yet little used in research, although its interest has been increasing in recent years because of its close relationship with technology-based self-services and the great development experienced by information and communications technologies. In this sense, Berger (2009) indicates that the need for interaction is poorly treated in the field of research on technology-based self-service, being yet a factor of major influence. Several scales have been used

to measure this construct, but the instrument that has had greater recognition in the academic literature has been developed and validated by Dabholkar (1996). However, studies to date have used this scale of need for interaction in a very heterogeneous way, getting very mixed results that cause a certain mistrust in its application.

The general objective of this study is to validate the measurement scale of the Need for Interaction with the Service Employee created by Dabholkar (1996). This is to resolve doubts generated in previous studies on the application of this measuring instrument. Previously, it is necessary to review the literature on the measurement of the need for interaction between client and employee. Moreover, as specific objective, it is necessary to deepen the use of the scale of Dabholkar (1996) in other studies to detect their differences and address potential limitations facing its best use in future research.

2 LITERATURE REVIEW

As discussed above, it is possible to raise the need for interaction from a dual perspective. That is, it should be understood as the need for customer interaction, but it is also possible to study it as the need for interaction with the service providers. It is appropriate to discuss briefly some of the terms that have been proposed for these two perspectives, in order to better clarify their distinction.

On the one hand, Mills and Morris (1992) define the need for customer interaction as subjective judgments of the service provider about the importance of information exchange face to face with clients to achieve successful service production. As Kellogg and Chase (1995) endorse, the concept of *level of contact with the consumer* is introduced by Chase in 1978, which defines it as the contact time between the service provider and the client, valuing it as a percentage of total time needed to produce and deliver the service. Chase and Tansik (1983) develop a model of contact with the consumer at the theoretical level, which, although receiving considerable attention in the literature on organizational structure, is not reflected in its empirical testing. In an attempt to extend this concept, Bearden, Malhotra and Uscátegui (1998) define the level of contact with the consumer as the amplitude, regarding the degree of privacy and the temporal duration, of interpersonal interaction between the service consumer and the service provider. Finally, Surprenant and Solomon (1987) recognize the concept of *personalization* in the service encounter, understanding that service providers should show sympathy and empathy in providing good service. Mittal and Lassar (1996) define the term personalization as how the service employee relates to the client as a person.

Researches on the exchange process in any marketing activity have traditionally been directed mainly to the study of one of the parties, trying to fundamentally understand the satisfaction of sellers, their motivation and skills. As Czepiel (1980) and Schneider (1980) state, this view of the process can be particularly shortsighted. From the eighties the importance of emphasizing the dyadic quality of this process is recognized. This somewhat belated recognition is foreshadowed by Evans in 1963 (SOLOMON et al., 1985), who points out that sale is a social situation involving two parties. The interaction of these two parties depends, in turn, on economic, social and personal characteristic of each one of them and in order to understand the exchange process it is necessary to observe both sides as a dyad and not individually. The concept of service encounter hoards much of this emphasis.

Solomon et al. (1985) indicate that the service encounter is identified with the fulfillment of roles, in which both customers and suppliers have to represent their own role. Surprenant and Solomon (1987) define it as a dyadic interaction between a client and a service provider. But, as Bitner (1990) warns, the service encounter usually

deals with the service from the customer point of view.

From a perspective of social psychology literature, Gutek (1995) establishes certain differences between service relationships and encounters that deserve to be reviewed. Thus, service encounters consist of a simple interaction between a customer and a supplier, without expecting to interact with the other party in the future. Successive customer contacts are established with different suppliers rather than with the same provider. In this case, each supplier is functionally equivalent. However, service relationships arise when a customer and an employee expect to have repeated contacts in the future. In addition, this author includes the term *pseudo service relationships* when repeated contacts between a client and the same supplier organization are established, ie customers do not anticipate any future interaction with an individual employee of the company, but with the organization, through any of its employees.

The importance of positive relationships between customers and suppliers in the field of business is well known. But often these relationships are defined in a broader context of the purely commercial exchange between two parties. Thus, Butcher, Sparks and O'Callagham (2002) state that the nature of the relationships between customers and service providers resembles a social relationship that can be distinguished by the same characteristics of the friendships that exist in daily life.

Barnes (1997) suggests that the close relationships between buyer and seller confer a special status to the exchange between both parties. O'Brien and Jones (1995) explain that exchanges come, in many cases, from special services and attention and require more than a casual contact. Mattsson (1994) suggests that there is an emotional content in these relationships, where the psychological feelings can be created between the service employee and the customer. Barnes (1997) asserts that there is no genuine relationship between client and service provider

in the absence of such emotional ties. Berry and Parasuraman (1993) state that these emotional ties happen as a personal relationship that customers seek and value with service providers.

Morgan and Hunt (1994) indicate that consumers do not interact with the companies, but do so with employees. Beatty et al. (1996) emphasize that relationships tend to be established with individual sellers because customers seek continuous personal relationships with the same employee. Consumers prefer to contact a person who pays attention to them for a long time. Therefore, as Barnes (1994) notices, this social relationship between individuals is different from the one that may be initiated between the company and its customers and it is the development of personal relationships with employees, helping to establish relationships with the companies. In this regard, Gabbot and Hogg (1994) categorically assert that it is impossible to maintain a relationship with a company, since there are only relationships with the individual employee.

Gutek et al. ((1999) develop measures of different social mechanisms used in the interaction between a customer and a service provider, examining its effects. The results of their studies show that customers who have a service relationship with a specific service provider establish more service interactions and are more satisfied than those customers who establish more sporadic service encounters. In service relationships, customers can receive better service because they develop a history of interactions, know who to turn to and know what to expect and certainly trust their suppliers and feel more comfortable with them.

Langeard et al. (1981) and Bateson (1985) notice that the need for human contact in a service encounter is very important to some consumers. For their part, Breakwell et al. (1986) and Zeithaml and Gilly (1987) point out that some people feel that the use of machines in a service encounter dehumanizes the interaction.

In this regard, Forman and Sriram (1991) and Prendergast and Marr (1994) warn that consumers who have a greater need for interpersonal contact in a commercial situation tend to avoid machines. Specifically, Dabholkar (2000) carries out a study on customers of banks, noting that those who prefer human interaction are more likely to avoid using ATMs. As Dabholkar (1992) states, although such individuals may have a positive attitude, for example, to the use of computers in their homes, they can also show certain rejection when using them in a service situation. In these cases, marketers must provide different alternatives to customers so they can choose the traditional service options or the self-service options, depending on their preferences in a given situation.

Dabholkar (1992) studies the role of social interaction in fast food restaurants and verifies that the need for interaction with service employees has a negative effect on attitudes towards the use of new technology-based self-service options. Dabholkar (1996) stresses that the need for interaction with a service employee is an important factor in the technology-based self-service. Consumers with a high need for interaction are more likely to perceive the technology-based self-service option with a lower level of service quality, negatively affecting their motivation to use it. On the other hand, customers with low need for interaction, who perceive higher service quality in such consumption alternatives, are more motivated to use them.

Meuter et al. (1999) also explore the consumer experience with technology-based self-sevice options, finding that the fact of avoiding the service employee is a significant aspect for many users. That is, it follows that there are consumers who prefer the use of technology-based self-service in order to avoid personal interactions. In the same line of study, Meuter et al. (2000) apply the critical incident technique to investigate the causes of satisfactory and unsatisfactory evaluations of interactions with the technology-based self-service

systems, using a sample of Internet users. Avoiding the service personnel is among the benefits noticed by individuals. In many of these cases, consumers believe they can get the service themselves more efficiently than through interaction with company employees. In the same way, Dabholkar, Bobbitt and Lee (2003) study the reasons why consumers use or avoid using the scanner to shop in a supermarket chain. They notice in their analysis that the most important reason that justifies that consumers want to use traditional systems on purchases is attributed to the desire for contact with employees, valuing the respondents also their technical assistance and social experience that it involves. However, the main reason for using the scanner is justified precisely by the fact of avoiding the employee, stating the respondents that there is a lack of kindness and attention from the staff.

Dabholkar and Bagozzi (2002) research the moderating effects of consumer characteristics and situational factors in relationships that are established in an attitudinal model, using for it a purchase scenario at a fast food establishment. These authors warn that the greatest need for interaction with the service employee strengthens the relationship between ease of use and attitude and also strengthens the relationship between amusement and attitude. Therefore, they suggest that marketers of technology-based self-service promote the ease of use and friendliness of used systems, as well as amusement with them, especially if they are directed at a target audience that has a high need for interaction with the service employee.

In recent years there has been a greater proliferation of studies that relate the need for interaction with the attitudes and intentions of using technology-based self-service. We have observed in them that there are mixed results. So, for example, Lee et al. (2010) and Gelderman, Ghijsen and Diemen (2011) corroborate the existence of a negative effect between the need for interaction and intended use of technology-based self-services. Garcia and Santos (2011)

found significant influences between the need for interaction and attitude towards online shopping, but not so regarding the intention of online shopping. On the other hand, Curran and Meuter (2005) and Wessels and Drennan (2010) found no influence between the need for interaction and attitudes towards technology-based self-services or to the use of banking services through mobile phone, respectively. Nor Eastlick et al. (2012) observe influences of the need for interaction on familiarity, skill and extrinsic motivations in using technology-based self-service.

2.1 Measuring scale

Dabholkar (1996) suggests that the need for interaction with the service employee is the degree of importance that the consumer grants to human interaction in the service encounter. As similar constructs to the need of interaction with the employee, other constructs have been developed whose application is more direct to the field of technology-based self-service. These alternative constructs have a sense opposed to the need for interaction. Thus, for example, it is worth stressing the following constructs: (1) *avoid service personnel* (MEUTER et al., 2000); (2) *need for independence*, which incorporates Anselmson doctoral thesis in 2001 (DABHOLKAR; BAGOZZI, 2002); (3) *lack of sociability*, created by To, Liao and Lin (2007); and (4) *absence of social interaction*, which Martínez-López et al. (2014) have redefined from the previous construct. Studies using these related constructs often hypothesize that the absence of interaction with the employee can positively influence aspects such as satisfaction of technology-based services customer, attitudes towards the use of technology-based self-service, or utilitarian motivation of online shopping.

The most commonly used scale to measure the need for interaction between client and employee is the scale proposed by Dabholkar (1996), called Need for Interaction with the Service Employee (hereinafter NICES). This scale has a growing academic interest due to the increased researches on technology-based self-service. However, studies to date have used this scale in a different way, obtaining different results. So, for example, Curran and Meuter (2005) used three items, adapting them to banking services, not being worded exactly like the original scale. Wessels and Drennan (2010) are also based on the adapted scale of Curran and Meuter (2005).

In most cases, the original scale of Dabholkar (1996) and his adapted scale are used from the start with three of the four indicators (v.gr., BERGER, 2009; CHANG, 2011; COLLIER; KIMES, 2013; CURRAN; MEUTER, 2005; EASTLICK et al., 2012; GELDERMAN; GHIJSEN; DIEMEN, 2011; WESSELS; DRENNAN, 2010). However, it is not specified what are the reasons for this and, in turn, nor the exclusion of one of the items is explained. As it is a brief four-item scale, we fail to understand what were the reasons why a fourth item was previously eliminated in these studies. Perhaps it is due to a purely psychometric reason, which justifies the elimination of the third indicator, since it is expressed in negative sense, as in the works of Berger (2009), Wessels and Drennan (2010) and Gelderman, Ghijsen and Diemen (2011). On Table 1 we collect some basic statistical data from studies that have used the NICES scale, such as sample size, the number of indicators, the reliability coefficients and techniques of scale analysis.

TABLE 1 – Statistical data of the NICES scale

Previous studies	Sample size	Initial items	Final items	Cronbach's α or equivalent
Dabholkar (1996)	505	4	4	0.83
Dabholkar and Bagozzi (2002)	392	4	3	0.83
Curran and Meuter (2005)	628	3	3	0.60
Berger (2009)	831	3	3	n/a
Lee, Cho, Xu and Fairhurst (2010)	285	4	4	0.80*
Wessels and Drennan (2010)	320	3	n/a	0.75
Chang (2011)	105	3	2	0.89*
Garcia and Dos Santos (2011)	233	4	4	0.79*
Gelderman, Ghijsen and Diemen (2011)	525	3	3	0.66
Eastlick et al. (2012)	228	3	1	0.98*
Collier and Kimes (2013)	260	3	2	0.76
Lee and Yang (2013)	300	4	4	0.77

*Composite reliability; n/a = not available

Source: own elaboration

Some issues should be noted regarding table 1 and, in general, regarding basic statistical data of studies that have used this scale. First, the table shows the number of indicators that have been initially used in each study and the number of indicators that have remained on the scale in each study. Only five of the twelve studies analyzed have used a four-item scale based on other studies in a three-item scale. There have been several studies that have refined the initial scale, such as those of Dabholkar and Bagozzi (2002), Chang (2011), Collier and Kimes (2013) and Eastlick et al. (2013). So, for example, Dabholkar and Bagozzi (2002) remove the item 3, finally remaining three indicators in their scale. For their part, Collier and Kimes (2013) remove the item 4, while Eastlick et al. (2013) suppress two of the three items used, but do not provide information about which of were refined in their procedure. Chang (2011) does not indicate either which is the eliminated indicator of the three used in his scale. In addition, the scale of Curran and Meuter (2005) is an adaptation of the original

scale, without being literally the same. This same adapted scale of Curran and Meuter (2005) is used by Wessels and Drennan (2010). Also, Collier and Kimes (2013) call the scale *need for human interaction*, indicating that it is based on the scale of Meuter et al. but it really consists of three items of the scale of Dabholkar (1996). Another nomenclature used in studies on this scale is *need for social interaction* (v.gr. GARCIA; SANTOS, 2011).

On the other hand, the sample sizes of the various studies range from 105 to 831 elements, being the average of 384 individuals. Most of these studies have been based on samples of the USA population, with only five studies from outside this country, representing Germany (BERGER, 2009), Australia (WESSELS; DRENNAN, 2010), Brazil (GARCIA; SANTOS, 2011), Holland (GELDERMAN; GHIJSEN; DIEMEN, 2011) and Japan (CHANG, 2011). Samples of all analyzed studies were represented by the following individuals: college students (3 samples), bank customers (3) clients of shops (3) users online

reservations (1), airline passengers (1) users of online public service (1).

Also, all studies listed on table 1 have used a Likert-type scale, mostly with seven response options, although there have been four studies using five response options, as are cases of Berger (2009) , Gelderman, Ghijsen and Diemen (2011), Garcia and Santos (2011) and Collier and Kimes (2013). Regarding the used analysis techniques, confirmatory factor analysis and structural equation modelling are usually used, including two studies using the PLS approach (BERGER; 2009; CHANG, 2011). The most widely applied statistical programs are LISREL and AMOS, being SmartPLS used in two studies.

Finally, the analyzed studies establish relations of influence of the need for interaction in technology-based self-service systems. Thus, the need for interaction arises as a determinant factor of the quality of service of these systems (DABHOLKAR, 1996; CHANG, 2011), the attitudes towards these systems (BERGER, 2009; CURRAN; MEUTER, 2005; DABHOLKAR; BAGOZZI, 2002;), the intentions of using such systems (GARCIA; SANTOS, 2011; GELDERMAN; GHIJSEN; DIEMEN, 2011; EASTLICK et al., 2013; LEE et al., 2011; LEE; YANG, 2013; WESSELS; DRENNAN, 2010), or as moderating effect between the quality of interactive service and the intended use of technology-based self-service (LEE; YANG, 2013). Most of the results of these studies suggest a negative effect of the need for interaction regarding the perceived quality, attitudes and intentions to use technology-based self-service systems. Instead, the study of Collier and Kimes (2013) is the only one who analyzes a number of factors that can influence the need for interaction also in the context of technology-based self-service. These authors show that users of technology-based self-service systems have lower need for interaction when they are satisfied with

these systems, while the perception of non-users of these systems postulates the need for interaction as the most influential factor in an automated transaction. For its part, the study of Lee et al. (2010) also proposes the relation of the need for interaction with the age and gender. These authors suggest that women consider more important the need for interaction with the service employee and that the need for interaction increases with age.

3 METHODOLOGY

3.1 Sample and procedure

This present study is based on a survey of a sample of 819 college students from an academic institution in southern Spain. This sample is represented by 515 women and 304 men, with an average age of 21.4 years. It is a non-probability convenience sampling. In the data collection we have counted on the cooperation of various university profesores to pass the questionnaire in the beginning or the end of their classes.

3.2 Instrument

We have used the original scale of Dabholkar (1996), consisting of four indicators, distributing their responses on a Likert scale with seven options. However, according to the analyzed literature, we have considered appropiate to make a slight modification. To do this, we have been guided by the results obtained in the study of Dabholkar and Bagozzi (2002), in which they have to remove the third item. Thus, we considered that this third indicator may have some weakness for being expressed in the negative sense, so we have turned it into a statement with a positive sense. This was also done by García and Santos (2011). On chart 1 the full scale that we have used is detailed.

CHART 1 – NICES Scale

Indicators
1. Human contact makes services pleasant to consumer
2. I enjoy interacting with people that provide services
3. The personal attention given by employees is very important to me
4. Interacting with a machine when I can talk to a person instead bothers me

Source: own elaboration

3.3 Analysis techniques

Following Boudreau, Gefen and Straub (2001), the reliability of measuring instruments is usually limited to the calculation of Cronbach's alpha, while alternative methods or combinations of methods for validation, which are typical of current of more mature research, are rarely used. Thus, Cronbach's alpha and the correlation between each item and the total scale is considered as a benchmark in this study. For this purpose, the SPSS 17.0 computer package was used. But, in addition, the psychometric analysis of the NICES scale is performed through a latent structure analysis and an internal consistency analysis. This complementary methodology is used to improve the refinement of indicators, in order to obtain a better guarantee of robustness in the final scale. In this confirmatory factor analysis the estimation method known as PLS (PartialLeastSquares) is used, applying the statistical program SmartPLS 2.0 designed by Ringle, Wende and Will (2005).

PLS is a method belonging to structural equation modelling, called in an abridged form by their initials in English, ie SEM. Currently, the PLS method is less used in the research of business management than other SEM methodologies, although, as indicated by Hair et al. (2012), the interest in its use has increased considerably in recent years.

4 RESULTS

The reliability analysis of the measurement scale of the need for interaction with the service employee (NICES) provides an acceptable value of Cronbach's alpha, which reaches to be 0.7063. But this index is considerably improved by eliminating the indicator 3 (see table 2). This fact is confirmed by observing the results using the PLS analysis (see table 3).

TABLE 2 – Reliability analysis of the nices scale based on cronbach's alpha

Observed variables	Item-Total correlation	Cronbach's alpha if item deleted	Cronbach's alpha
1	0.5454	0.6224	
2	0.5798	0.5909	0.7063
3	0.6215	0.5783	
4	0.3311	0.7911	

Source: own elaboration

TABLE 3 – Reliability analysis of the nices scale based on pls analysis

Observed variables	Loadings	Communalities
1	0.7979	0.6367
2	0.8289	0.6871
3	0.8338	0.6952
4	0.5292	0.2801

Source: own elaboration

The refinement processes performed are coincident, so we definitely stick with indicators 1, 2 and 3 representing the NICES scale (see tables 4 and 5).

TABLE 4 – Refinement process of the NICES scale through cronbach's alfa

Item	Step 1		Step 2	
	Correlation	Contribution	Correlation	Contribution
1	0.5454	0.6224	0.6190	0.7316
2	0.5798	0.5909	0.6575	0.6917
3	0.6215	0.5783	0.6273	0.7218
4	0.3311	0.7911	--	--
	α Cronbach: 0.7063		α Cronbach: 0.7911	

Source: own elaboration

TABLE 5 – Refinement process of the NICES scale through PLS

Item	Step 1	Step 2
1	0.6367	0.6893
2	0.6871	0.7318
3	0.6952	0.6981
4	0.2801	--

Source: own elaboration

The reliability analysis performed is summarized on table 6. We can confirm that the explained variance and composite reliability coefficient of the NICES scale clearly exceed the desirable limits. If these results are compared with the indicators of other studies, we can observe that Cronbach's alpha is high, although it is slightly below that indicated by the original scale of Dabholkar (1996), which is $\alpha = 0.83$. On the other hand, composite reliability and explained variance are very high compared to other related studies. Thus, Lee et al. (2010) use the original scale and obtain a composite reliability of 0.8 and an explained variance of 0.5, while Garcia and Santos (2011) also use the original scale and obtain a composite reliability of 0.79 and an explained variance of 0.49.

TABLE 6 – Summary of reliability analysis of NICES scale

Item	Item-Total correlation	Cronbach's alpha if item deleted	Cronbach's alpha	Commu-nalities	T-statistic	Composite reliability coefficient	Explained variance
1	0.6190	0.7316	0.7911	0.6893	54.6985	0.878	0.706
2	0.6575	0.6917		0.7318	66.4746		
3	0.6273	0.7218		0.6981	57.0503		

Source: own elaboration

5   CONCLUSIONS

The need for interaction between employee and client has become increasingly important in recent years in the field of service encounter. This importance is due to the development of applications of technology-based self-service. However, the use of scales that define the need for interaction in marketing research is still limited. The scale of need for interaction

of Dabholkar (1996) is the most recognized nowadays, but we have found that it does not have sufficient academic support yet. Moreover, its ability to measure is being questioned recently due to the differences in the results obtained in several studies using this scale (v.gr., BERGER, 2009; CURRAN; MEUTER, 2005; EASTLICK et al., 2012; GARCIA; SANTOS, 2011; GELDERMAN; GHIJSEN; DIEMEN, 2011; LEE et al., 2010; WESSELS; DRENNAN, 2010). Although we have found that the use of this measuring instrument has been somewhat heterogeneous in terms of number and content of the indicators that compose it. In this regard, we have observed that the works that are more distant from the format of the original scale are those that obtain the worst results in their studies. That is to say, in these cases there are no influences of need for interaction on other variables related to attitudes and uses of technology services. We can mention among these works, the ones of Curran and Meuter (2005), Wessels and Drennan (2010) and Eastlick et al. (2012). It is for this reason that we have raised the reliability analysis of the original scale, using a considerably larger sample to try to contrast these differences.

There are only a few studies, other than those of Dabholkar, where the four original items have been used (GARCIA; SANTOS, 2011; LEE et al., 2010; LEE; YANG, 2013). Most studies have used a scale with three indicators, but they do not agree on the selection of the same items, although the exclusion of the indicator that is enunciated in a negative way is more frequent. In the present study the validity of the scale of Dabholkar (1996) has been confirmed, refining the item 4, by obtaining a reduced factor loading, as also occurred in studies of Garcia and Santos (2011) and Collier and Kimes (2013). In the list of studies that have used the scale of Dabholkary that have been analyzed in this work, it has been found that most of them used the same type of Likert scale. In this regard, we understand that it is still advisable to use a Likert-type scale with seven alternative response options.

The present study was based on a wider sample than other previous studies, nearly tripling

the size of average sample of other investigations. It has also been one of the few studies that have used the four indicators of the original scale, since only one third of previous studies has done it and with little justification in most cases. This study was also conducted in a different geographical area from those analyzed so far and has used two analysis techniques to validate the scale of need for interaction.

The results obtained in our study of validation of the original scale of Dabholkar (1996) have proven to be robust, as opposed to the recent indications of Eastlick et al. (2012), who suggested its review and extension. However, it is advisable to consider some details when using it in practice. Thus, it seems to be enough to use the first three items of the original scale, eliminating the fourth indicator and expressing the third item in a positive sense. However, we believe that this is appropriate in those cases where it is necessary to increase the research efficiency, because of the inherent restrictions of the amplitude and the costs of carrying out an empirical study. If it is possible to overcome these restrictions, a prudent solution would be use the original four indicators at first, but all statements in a positive sense, rejecting those items that have not been effective in further analysis.

In short, we have dispelled the doubts raised recently regarding this measurement scale, confirming that the revised scale of Dabholkar (1996), updated in its three items, can be a brief, simple and reliable measuring instrument. We believe that with it we have refined and strengthened the possibilities of future use of the measuring instrument, which has a great importance nowadays due to the expansion that the technology-based self-service systems have experienced. Therefore, we want to name this renovated three-item instrument as Scale of Need for Social Interaction Service Provider (NISP) to give a greater human value against the increasingly widespread use of information and communication technologies.

Like any research, the present study is not free of limitations. We have used a sample of college students as Dabholkar (1996), whose

study indicates that this does not mean a problem of external validity. But this is a sample with similar characteristics, especially age, geographical environment and education. This aspect is an advantage for getting a greater power of the results, as these diverse sources of heterogeneity that may be influencing the respondents' answers are consequently controlled. However, it is an inconvenient for the generalization of the findings, as the population from which the sample is drawn is very homogeneous.

In future research, first, it would be appropriate to apply the study to other populations with different characteristics from the one we have used in this work aiming to check the scale invariance. In this regard, it would also be interesting to conduct a gender study. Also, it could deepen the implementation of the scale of Dabholkar comparing its usefulness with other related constructs, such as those that have been proposed by Meuter et al.. (2000) and To, Liao and Lin (2007), or, more recently, by Martínez-López, Pla-García, Gázquez-Abad and Rodríguez-Ardura (2014). With this, a greater understanding of the duality between the absence or presence of social interactions between client and service provider would be provided. On the other hand, the need for social interaction is a factor to consider in shaping attitudes, intentions of use and satisfaction, as well as regarding the emotions experienced in the service encounter, as Milan (2007) says, or reliability, as Abdalla et al. (2012) indicate. These are all research work proposals that we consider interesting for future studies.

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