

INTEGRATING CONSUMER EXPERTISE AND THE EMBODIED KNOWLEDGE OF FIRMS AS CO-CREATORS OF VALUE IN AN ELECTRONIC COMMERCE CONTEXT

BARRUTIA LEGARRETA, JOSE MARIA

GILSANZ LOPEZ, AINHIZE

Ainhize.gilsanzhu.es, josemaria.barrutia@ehu.es

Universidad del País Vasco

ABSTRACT

Recent related service-driven approaches such as Service-Dominant logic, Service logic and Service Science suggest that firms and consumers co-create value by integrating their knowledge. These perspectives are the result of intense conceptual development, but more positive research that examines the value co-creation process in the business-to-consumer (B2C) area is needed. This research is addressed to filling this gap in the context of B2C electronic service quality (e-SQ). Previous e-SQ research has focused on the embodied knowledge that firms incorporate in their electronic service systems to explain consumers' value. However, consumer knowledge has not been integrated as a main determinant of consumer value. This research provides evidence that consumer expertise and the embodied knowledge of firms, in the shape of electronic service systems, have a significant effect on consumer value. In addition, as e-SQ literature is not conclusive, this research offers some insights regarding e- SQ metrics.

Keywords

Electronic service quality; consumer expertise; value; co-creation; S-D logic

1. INTRODUCTION

Recent marketing perspectives focus on value co-creation between consumers and service providers. In particular, the Service Dominant (S-D) logic of marketing (Vargo and Lusch 2004, 2006, 2008) views the customer as an operant resource (i.e. a resource that contributes operant resources or competences - knowledge and skills - and is capable of acting on other resources) or in other words a collaborative partner who co-creates value with the firm. A more radical perspective, Service logic (Grönroos 2006; Grönroos and Ravald 2009), views the customer as the value creator and the firm as a value facilitator. Another related perspective, Service Science (Spohrer et al. 2007, 2008; Vargo et al. 2008) suggests that company and consumer service systems simultaneously access, adapt and integrate resources to create value for themselves and others, and that knowledge is the core source of all exchange. However, empirical research that has examined or confirmed the value co-creation process in the business-to-consumer context is scarce.

Previous quantitative marketing research has not usually considered consumer knowledge as an explanatory factor of the value perceived by the consumer. A few e-SQ studies have included some knowledge-related consumer traits in their models, (self-efficacy, for example), but only as moderator variables (e.g. Van Beuningen et al. 2009; Yi and Gong 2008). This lack of empirical research into value co-creation might carry with it more serious implications today, due to the fact that (1) companies are using self-service technologies to reduce the number of employees by devolving some activities to consumers and (2) the rise in e-commerce has led to a decline in smaller retail establishments and the increased dominance of larger Internet firms (Goldmanis et al. 2010). Information technology enables new forms of firm-consumer interaction. For instance, online banking consumers now study and decide what investment fund to buy without interaction with employees, browsing the Internet, accessing comments and suggestions from other consumers and using their own knowledge. Then they purchase the selected investment fund online following a predetermined process. When consumers are novices they may fail to choose the appropriate investment fund for their profile or make mistakes when purchasing online. Expert consumers might indeed actually achieve more value without interacting with employees, as was suggested by Meuter et al. (2000).

In an online context, electronic service quality (e-SQ) is critical for facilitating value co-creation. The applied competences and resources (service) of the provider must be integrated with the competences and resources of the consumer before value is created (Vargo et al. 2008). The customer must integrate the embedded knowledge of the service provider (the competence and capabilities built into the software) with his or her own related knowledge (regarding how to choose the appropriate investment fund and order it properly via the internet), time and other resources (such as a computer). This integration results in uniquely determined value-in-context (Vargo and Lusch 2008).

The first formal definition of e-SQ was provided by Zeithaml et al. (2000): “the extent to which a Website facilitates efficient and effective shopping, purchasing, and delivery of products and services” (p. 11, also in Parasuraman et al. 2005, p. 217). This definition fits in with the above marketing perspectives, in which service provider is viewed as a value creation facilitator. However, e-SQ literature has focused on the development of measurement scales to assess how service quality is perceived and has not jointly considered e-SQ and consumer knowledge as determinants of the value achieved by the consumer. This research is mainly addressed to filling this gap.

In addition, we hope to offer other insights regarding the measurement and consequences of e-SQ. Although substantial advances have been made (Barrutia and Gilsanz 2009), clear definitions, solid conceptual work, and empirical studies in multiple settings have been scarce, suggesting that we are still in the early stages within this field of research. Consistently and somewhat more flatly, Park and Gretzel (2007) affirm that “the development of Website evaluation methods has been all but systematic and conclusive” (p. 46). Consequently, there is no agreement as to the exact nature or number of dimensions of service quality to be included in

the evaluation customers make of electronic services. Likewise, the issue as to whether reflective or formative measurement should be used has not been conclusively answered. A major controversy exists regarding the need to include the dimensions of privacy/security and enjoyment. This research incorporates a measurement of overall service quality and contributes some insights regarding the suitability of considering these dimensions as significant explanatory factors of overall e-SQ. Finally, previous literature has concentrated on the development of e-SQ scales more than on e-quality consequences. This research focuses on the consequences of e-SQ and includes consumer perception regarding sacrifice (payment equity) and consumer expertise as determinants of the value-satisfaction-behavioral intentions chain.

The remainder of this article consists of six sections. The next section provides a synopsis of the extant literature on S-D logic (and other related frameworks such as the Service logic and Service Science), e-SQ and consumer knowledge. Drawing on insights from the extant literature, the third section proposes the model to be tested and includes the hypothesis formulation. The next two sections are devoted to presenting the data collection, the metrics used in this research, and the results achieved. The last two sections discuss these results as well as managerial implications and offer directions for future research.

2. LITERATURE REVIEW

2.1. *S-D logic, Service Science and Service logic*

S-D logic is grounded in ten foundational premises (Vargo and Lusch 2004, 2006, 2008). Vargo and Lusch (2008) define service as the application of skills and knowledge for the benefit of another party and state that “service is the fundamental basis of exchange” (foundational premise 1, reworded in 2008). Goods are just a distribution mechanism for service provision (foundational premise 3). Foundational premises 4 and 5 state that the customer is always a co-creator of value and that the enterprise cannot deliver value, but only offer value propositions. With value-in-use at the core stage of a complex value creation process, the service-centered view of exchange suggests that knowledge is ubiquitous in the market and is generated by all participants, who contribute to the creation of value for themselves and for others.

Vargo et al. (2008) link S-D logic with the Service Science perspective. Service Science is defined as the study of service systems and the co-creation of value within complex configurations of resources. A service system is an arrangement of resources (including people, technology, information, etc.) connected to other systems by value propositions (Spohrer et al. 2007, 2008). Vargo et al. (2008) consider individuals, groups, organizations, firms, and governments to be service systems if they can take action, apply resources, and work with others in mutually beneficial ways. Value-in-exchange is the negotiated measurement offered and received (e.g. money and value proposition) among exchange partners.

A revised Service Dominant (S-D) logic, Service logic, has been proposed by the Nordic school (Grönroos 2006; Grönroos and Helle 2010; Grönroos and Ravald 2009). It has been considered as a more radical view on value-in-use where service providers are seen to be supporting customer value creation (Heinonen 2007), rather than viewing the customer as a co-creator of value (controlled by the service company). But the firm is not restricted to making value propositions only, for it can interact with its customers and become a co-creator of value with its customers. Interaction is viewed as a prerequisite to value co-creation.

2.2. *E-SQ*

Many forms of customer service are provided through technology (Meuter et al. 2000). Self-Service Technologies (SSTs) enable customers to order, buy, and exchange resources with companies without any direct interaction with their employees (Zeithaml et al. 2009). These technologies include electronic technologies, which enable consumers to make purchases over the Internet. Self-service is not inconsistent with the emphasis on the collaborative nature of value creation inherent to S-D logic. Self-service implies firm-consumer interaction. The specialized knowledge of firms (in the shape of Web page design, speed, information accuracy,

and so on) collaboratively works with consumer knowledge to co-create value. So, consumer value is strongly dependent on consumer knowledge.

In particular, electronic services contribute two key benefits to consumers: information efficiency and transaction efficiency (Parasuraman and Zinkhan 2002). However, Parasuraman et al. (2005) state that if Web channels are to be accepted by consumers, companies must shift the focus of e-business from e-commerce (the transactions) to e-service (all cues and encounters that occur before, during, and after the transactions). E-SQ is viewed as a basic requirement for the good performance of electronic channels and as one of the principal determinants of success for organizations in on-line and multichannel contexts (Montoya-Weiss et al. 2003; Barrutia et al. 2009).

Appropriate conceptualisation and measurement are crucial for the effective management of service quality. The conceptualisation and development of e-SQ measurements is needed because it will help control and improve the performance of online companies (Yang et al. 2003) and, likewise, avoid service failures or faults (e.g. Zeithaml et al. 2002). E-SQ research has often taken an exploratory approach in the development of scales, and the structure and meaning of the obtained dimensions have mainly been determined ex post by results from data analysis. A theoretical framework has hardly been used. The works by Collier and Bienstock (2006) and by Fassnacht and Koese (2006) may be considered as exceptions. Some authors mention a specific theory or concept at the outset of their model development, but this is not clearly reflected in the dimensionality of their scale (e.g. Loiacono et al. 2002; Bauer et al. 2006). Parasuraman et al. (2005) use a means-end framework to situate their research, thereby delimiting it to an understanding of the content and the consequences of e-SQ quality. Consequently, there is no agreement as to the exact nature or number of dimensions of service quality to be included in the evaluation customers make of electronic services. Previous literature has concentrated on the development of e-SQ scales more than on e-quality consequences. This research studies the effect of e-SQ on the variables of value, satisfaction and behavioral intentions.

2.3. Consumer Knowledge

Consumer knowledge has mainly been treated in the literature as a one-dimensional construct, referred to as product familiarity or prior product related knowledge (Alba and Hutchinson 1987). Familiarity is defined as the number of product-related experiences that have been accumulated by the consumer. This construct has been measured by several indexes which include frequency of purchase (e.g. Newman and Staelin 1973), formal training (e.g. Hutchinson 1983) and price recall (for a review, see Estelami et al. 2001).

Alba and Hutchinson (1987) introduce the concept of consumer expertise “in a broad sense that includes both the cognitive structures (e.g. beliefs about products and their attributes) and the cognitive processes (e.g. decision rules for acting on those beliefs)” (p. 411). Expertise is affected by familiarity, but is a broader concept. Expertise is defined as the ability to perform product-related tasks successfully. Five distinct aspects, or dimensions, of expertise are identified: cognitive effort, cognitive structure, analysis, elaboration, and memory.

Cognitive effort refers to product-related tasks that are performed with minimal effort and without conscious control. According to Alba and Hutchinson expertise reduces cognitive effort and favors automaticity. **Cognitive structure** reflects factual knowledge and beliefs that consumers have about products and the ways in which the knowledge is organized (Kleiser and Mantel 1994). The cognitive structure of experts is more powerful. **Analysis** refers to selective encoding, classification processes and inference. According to Alba and Hutchinson experts are more able than novices to restrict acquisition to relevant and important information (selective encoding); once identified, this information is processed more extensively than information that is irrelevant or unimportant. Experts are also more likely to classify products/brands spontaneously. Finally, experts are less prone than novices to make inferential errors as a result of stereotyping. **Elaboration / problem solving** represents the number of interviewing facts that must be computed in order for an inference to be made (Kleiser and Mantel 1994). Novices are

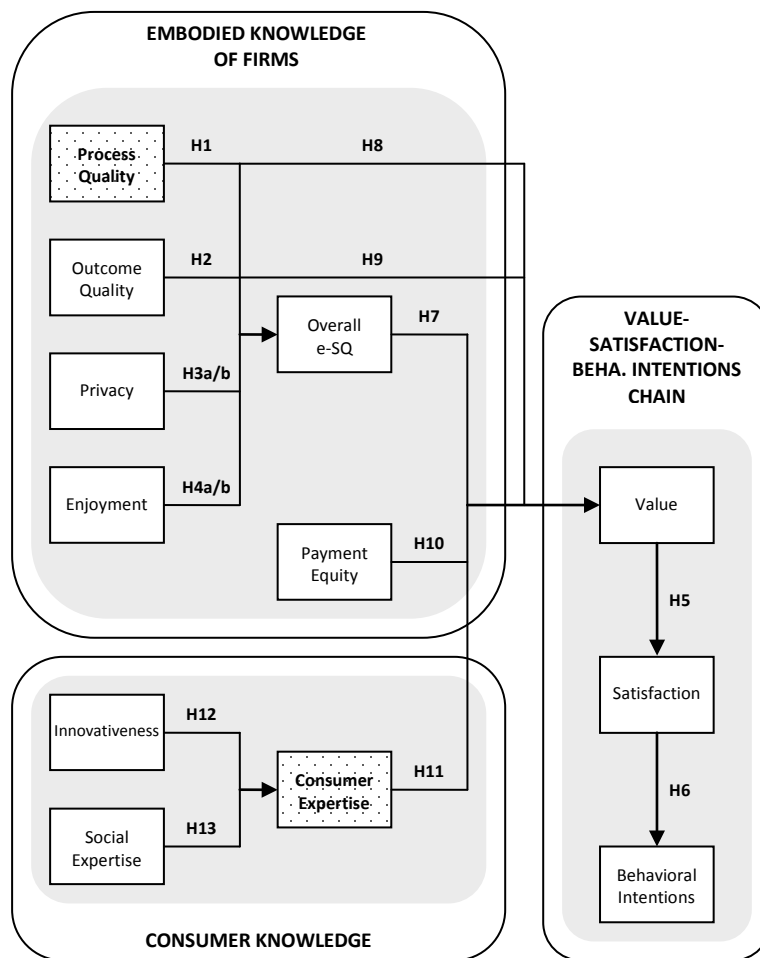
more likely than experts to be inefficient problem solvers: consequently, they will more frequently purchase unnecessary goods and/or features. Expertise results in better recall of product information (**memory**), thereby increasing the quantity of information that can be used in memory-based decision making.

The conceptual propositions of Alba and Hutchinson (1987) have scarcely been tested. As an exception, Kleiser and Mantel (1994) propose a second order measurement scale to evaluate consumer expertise in the context of cameras. More recently, Chiou and Droge (2006) hypothesize the effect of consumer expertise on behavioral loyalty, which is supported by their data. Other related marketing literature offers dispersed evidence that consumer expertise affects consumer behavior. For instance, a body of research shows that ‘price cues’ (marketing tactics used to persuade customers that prices offer good value) are less effective with more knowledgeable consumers (Anderson and Simester 2008). In short, Alba and Hutchinson find several ways in which expertise affects consumer ability to perform a buying process successfully. In the above case, where an investment fund is purchased, experts will easily and quickly differentiate between investment funds with and without risk, analyze the past performance of the various investment funds and compare it with their counterparts in the appropriate Website, examine the fees charged, and so on. Novices, meanwhile, will feel confused about the criteria they should use to choose between the wide variety of investment funds available over the Internet.

3. PROPOSED MODEL AND METRICS

The model proposed is depicted in Figure 1. The embodied knowledge of firms in the shape of e-SQ and low cost to consumers is integrated with consumer expertise to drive the value-satisfaction-behavioral intentions chain.

FIGURE 1
Proposed Model



Note: Both *Process Quality* and *Consumer Expertise* constructs are second-order variables, each with four first-order reflective dimensions.

3.1. Process quality and outcome quality as antecedents of overall e-SQ

Traditional service quality is often considered in terms of its processes and outcomes (Grönroos 1983; Parasuraman et al. 1988), whereby the quality of service outputs (i.e. technical quality) and the nature of the interaction between service providers and customers (i.e. functional quality) are key contributors to customers' evaluations of overall service quality. To measure e-SQ we built mainly on the measurement scales proposed by Parasuraman et al. (2005), Collier and Bienstock (2006), and Fassnacht and Koese (2006). Although there are major differences between these scales, a common underlying view is the existence of these two major components: process quality (i.e. attributes relate to the Website–customer interface) and outcome quality (i.e. fulfillment attributes relate to the Website's behind-the-scenes infrastructure). The work by Collier and Bienstock (2006), in particular, explicitly includes these two components of e-SQ. Fassnacht and Koese's scale (2006) includes three components: environment quality, delivery quality and outcome quality. However, environment quality and delivery quality could be interpreted as two forms of process quality. Parasuraman et al. (2005) do not explicitly consider the differentiation between process and outcome quality, but conclude that efficiency (process) and fulfillment (outcome) are the most critical and equally important facets of e-SQ. They also state that it is noteworthy that whereas the efficiency attributes deal with designing the Website–customer interface, virtually all the fulfillment attributes relate to the Website's behind-the-scenes infrastructure.

The issue of whether reflective or formative measurement is more appropriate is becoming an important topic in market research. Collier and Bienstock (2009) undertook a study of e-service quality and analyzed the data using a formative conceptualization, as well as a traditional reflective conceptualization. The results of their comparison demonstrated very different managerial conclusions for the two specifications. This research uses reflective indicators to build the two main dimensions of process quality and outcome quality and consider both metrics as formative in order to determine the overall service quality perceived by the consumer. So, process and outcome quality are understood as complementary in determining the overall service quality (for a similar view see e.g. Eisingerich and Bell 2008). Therefore, we expect that (see Figure 1):

H1: Process quality will have a significant positive effect on overall e-SQ

H2: Outcome quality will have a significant positive effect on overall e-SQ

3.2. Competitive hypotheses regarding the effect of privacy/security and enjoyment on overall e-SQ

A lack of consensus exists regarding the suitability of including or not some other dimensions to measure e-SQ. A major controversy exists regarding the suitability of including the dimensions of privacy/security and enjoyment. In some studies, privacy/security is identified as a determining factor of perceived service quality (e.g. Parasuraman et al. 2005; Collier and Bienstock 2006). Parasuraman et al. (2005) include privacy as a dimension of e-SQ and show that although it is the least critical of the four ES-QUAL dimensions, this dimension still has a significant influence on customers' global evaluations of Websites. Other researchers suggest that privacy/security often carries the notion of trust in the service provider and do not include this dimension (e.g. Yang et al. 2004; Fassnacht and Koese 2006); also that experience may indeed mitigate concerns about Website security (Wolfenbarger and Gilly 2003). Another controversial dimension is related to the enjoyment of electronic services. Some relevant works do not include this dimension. Parasuraman et al. (2005) believe that enjoyment may not be relevant in many contexts or to many consumers. Conversely, other authors emphasize the

relevance of this dimension (e.g. Bauer et al. 2006; Fassnatcht and Koese 2006). As the previous literature is not conclusive, we consider two competitive hypotheses regarding the effect of privacy/security and enjoyment on overall e-SQ. Therefore, we propose that (see Figure 1):

H3 a and b: Privacy/security will/will not (a/b) have a significant positive effect on overall e-SQ

H4 a and b: Enjoyment will/will not (a/b) have a significant positive effect on overall e-SQ

3.3. E-SQ constructs (process quality, outcome quality, overall e-SQ) and payment equity as antecedents of the value-satisfaction-behavioral intentions chain

Marketing research has focused on the study of factors that explain consumers' behavioral intentions (e.g. future purchase, word-of-mouth). Four constructs are particularly relevant for explaining consumer's behavioral intentions: sacrifice, service quality, value, and satisfaction. All of them are included in this research. However, there is little agreement about how these four dimensions collectively relate to behavioral intentions (for a review see Brady et al. 2005).

Some previous service quality literature has focused on service quality as a direct antecedent of value and behavioral intentions (Parasuraman et al. 1985, 2005). In these studies value is understood as the trade-off between service quality and price (Zeithaml 1988; Varki and Colgate 2001). They are theoretically grounded with attitude theory (Fishbein and Ajzen 1975). According to this view, Parasuraman and Grewal (2000) state that service quality enhances perceived value, which, in turn, contributes to customer loyalty (i.e. the quality-value-loyalty chain). This research extends this view to echo the so-called "satisfaction model" (Brady et al. 2005). The effects of the e-SQ constructs, sacrifice, and service value on behavioral intentions are mediated by satisfaction. Satisfaction is viewed as a summary psychological state about the consumption experience (Chiou and Droge 2006). The inclusion of satisfaction in this research is consistent both with Brady et al.'s (2005) comparison of service evaluation models and with other previous studies (see e.g. Cronin and Taylor 1992; Gotlieb et al. 1994). So, we propose:

H 5-6: Value will have a significant positive effect on satisfaction (H5), and satisfaction will have a significant positive effect on behavioral intentions (H6)

In traditional service quality models, e-SQ and price are antecedents of value. Previous e-SQ research uses a means-end-chain approach to understanding consumers' cognitive structures (Parasuraman et al. 2005). In that approach, value perceptions are viewed as cognitive responses at different levels of abstraction (Young and Feigen 1975). Building on this framework and on previous e-SQ research, we consider that consumers perceive at least three kinds of dimensions, which affect value: process quality (e.g. Collier and Bienstock 2006), outcome quality (e.g. Fassnacht and Koese 2006), and overall e-SQ (e.g. Yang et al. 2005). Therefore, we expect that (see Figure1):

H7: Overall e-SQ will have a significant positive effect on value

H8: Process quality will have a significant positive effect on value

H9: Outcome quality will have a significant positive effect on value

Payment equity represents customer perception of the fairness of the price paid for services consumed (Bolton and Lemon 1999, p. 173). Marketing academics have found a direct negative relationship between price and consumer value (e.g. Erickson and Johansson 1985; Lichtenstein et al. 1993; Grewal et al. 1998) and, on the contrary, a positive relationship between payment equity and behavioral loyalty (Bolton et al. 2000). However, payment equity has not usually been considered in e-SQ research. Including this dimension allows us to infer the extent to which overall service quality is more important than price for explaining the perceived value achieved by online shoppers, as has been suggested (Parasuraman and Zinkhan 2002; Reichheld and Scheffer 2000). Therefore, we expect that (see Figure 1): **H10: Payment equity will have a significant positive effect on value**

3.4. Antecedents and consequences of consumer expertise

In line with S-D logic, Service logic, and Service Science, and Alba and Hutchinson's consumer expertise framework we expect firms to adapt and integrate their knowledge with a consumer's existing expertise, and value is derived and determined in context. Alba and Hutchinson (1987) found several ways in which consumer expertise affects value. In short: (1) high expertise should imply a greater ability to understand the offering; (2) experts are able to separate what is relevant and important from the irrelevant and the unimportant; and (3) the ability to elaborate on given information, generating accurate knowledge that goes beyond what is given, improves as expertise increases. Therefore, we hypothesize that (see Figure 1):

H11: Consumer expertise will have a significant positive effect on value

This research is not focused on explaining the antecedents of expertise. Intelligence, education, occupation, opportunities, motivations, social context, and many other variables may affect consumer expertise. However, the model incorporates two explanatory variables that have been considered as particularly relevant in the relatively complex context of electronic commerce: innovativeness and social expertise. Innovativeness refers to a tendency to be a technology pioneer or leader (Parasuraman 2000). Innovativeness affects people's propensity to embrace and use new technologies for accomplishing goals in home life and at work (i.e. people's technological readiness, according to Parasuraman 2000). Lam et al. (2008) show that innovativeness has positive effects on the likelihood that people will adopt the Internet for personal purposes. As a consequence, it is foreseeable that innovativeness will positively affect consumer expertise, as innovators have a broader and more diverse Internet experience. Therefore, we expect that (see Figure 1):

H12: Consumer innovativeness will have a significant positive effect on consumer expertise

The model does not see consumers as atomistic elements stripped of social relations. It has been broadly recognized that knowledge is transferable. Individuals learn from their peers, neighbors, and friends (Arrow 1962) and, more recently, from other members of virtual communities (Blazevic and Lievens 2008). As a consequence, we hypothesize that individuals may use their social relations to access information and enhance their expertise, and we term this phenomenon social expertise. Our approach is based on concepts such as social support derived from psychology (e.g. Sarason et al. 1983), social capital derived from economics and sociology (e.g. Coleman 1988), and word of mouth and know-how exchange derived from marketing (e.g. Bristol 1990; Gruen et al. 2007).

The psychologically-driven concept of social support refers to diverse and complex support from peers and friends in difficult situations (health or work related). From an economic-driven approach, some authors (e.g. McFadyen and Cannella 2004) refer to social capital as investment in social relations with expected returns in the marketplace. Coleman (1988) showed that consumer expertise (he referred to human capital) can be enhanced by social relations (social capital) by accessing to high quality information. From a marketing perspective, Gruen et al. (2007) refer to the phenomenon of knowledge transferability as C2C know-how exchange. It is viewed as interactions among individuals that serve as an information source that enhances competency and knowledge and provides a basis for action. Therefore, the final result of know-how exchange is an increase in consumer expertise. On the basis of previous research we define the concept of social expertise as the degree to which consumers receive intelligent social support for electronic commerce purposes. Therefore, we expect that (see Figure 1): **H13: Social expertise will have a significant positive effect on consumer expertise**

4. DATA COLLECTION AND MEASUREMENT

We used a convenience sample, with the intention of reproducing the socio-demographic profile of the population of Spanish Internet buyers. The profile of the respondents of our study was compared with the profile of the most representative survey of Internet buyers in Spain (Urueña

et al. 2010). 49% of the individuals in our sample are male and 51% female (versus 50.4% and 49.6% respectively in the Urueña et al.'s 2010 study). 82.8% of the individuals in our sample are under 49 (vs. 80.5%) and 78% have an annual income of 60,000 Euros or more (vs. 72.4%). Replicating Parasuraman et al.'s criteria (2005), we surveyed purchasers who had only completed online transactions before (not information searchers) and who had sufficient online shopping experience. The respondents were asked to evaluate a particular Website of their choice through which they had recently made a purchase. A total of 472 usable questionnaires were collected.

Where possible, established scales were used. Process quality is understood in this research as a second order construct composed of the dimensions of efficiency, system availability, design and information accuracy. To measure efficiency and system availability we used items adapted from Parasuraman et al. (2005). Efficiency refers to the ease and speed of accessing and using the site, and system availability to the correct technical functioning of the site. To measure design and information accuracy we adapted items from Fassnacht and Koese (2006). Design is understood to be the clarity with which information and options are presented, and information accuracy to mean that the information is updated, complete, and intelligible. Outcome quality refers to the extent to which the site's promises are fulfilled.

The outcome quality metric is adapted from Fassnacht and Koese's (2006) measure of reliability and Parasuraman et al.'s (2005) measure of fulfillment. Overall e-SQ is understood as a global judgment, or attitude, regarding the superiority of the service (Parasuraman et al. 1988, p. 16). This dimension is adapted from Yang et al. (2005). Privacy/security is understood as the degree to which the customer believes the site is safe from intrusion and personal information is protected and is measured according to Parasuraman et al. (2005). Enjoyment is taken to be the degree to which use of the service arouses positive feelings, and it is measured according to Fassnacht and Koese (2006).

The dimensions of value and behavioral intentions are adapted from Parasuraman et al. (2005). The satisfaction dimension is derived from Yang et al. (2005). The payment equity dimension was adapted from Bolton and Lemon (1999) and Verhoef et al. (2002).

Alba and Hutchinson's (1987) view of consumer expertise is adopted in this research. Kleiser and Mantel (1994) proposed a four dimensions scale of measurement to make Alba and Hutchinson's perspective operative, and it includes: cognitive effort, analysis, elaboration, and memory. We use this scale and adapt the items to fit the electronic commerce context. Whilst Kleiser and Mantel focus on product-market related general expertise, we reworded the items to emphasize product-market related expertise within an electronic commerce context. Different measures of innovativeness have been proposed. We adapt items from Parasuraman (2000) and Goldsmith and Hofacker (1991). The social expertise metric is specifically built for this research on the basis of the social support questionnaire (Sarason et al. 1983) and the know-how exchange measure (Gruen et al. 2007).

5. RESULTS

We carried out a series of CFAs using EQS 6.1 to demonstrate the factor structure of the constructs included in the model. We conducted CFAs on all the first-order dimensions and the two second-order factors included in our model (i.e. customer expertise and process quality). After confirming all these structures we ran a structural model in order to test nomological validity. To assess the appropriateness of the proposed measures, we followed traditional procedures used in marketing research (Byrne 2006; Fornell and Larcker 1981; Gerbing and Anderson 1988; Hair et al. 2010).

5.1. Measurement model

Before performing the CFA analysis, the normality of the data was examined, revealing that the individual values of skewness and kurtosis for each item were satisfactory. However, the normalized estimate for the Mardia coefficient presented a value of 139.42, which is indicative

of the existence of multivariate kurtosis. It was necessary, therefore, to consider the robust fit measures (specifically, Satorra and Bentler's scaled Chi-square test, 1994).

Table 1 presents the results of the analyses of unidimensionality, convergent validity, and reliability. Scale wordings, standardized parameter estimates, composite reliability, and average variance extracted (AVE) are shown. All items load on their respective dimensions significantly, ranging from .666 to .945. The AVE values obtained are all above .50, indicating convergent validity among items for each latent construct. Additionally, every construct shows very good internal consistency, with construct reliabilities ranging from .703 to .946.

TABLE 1
Unidimensionality, Convergent Validity, and Reliability Assessment

Construct and item	Standard. Loading	CR	AVE
EFFICIENCY		.882	.652
Information at this website is well organized	.796		
This website is simple to use	.826		
Enables me to get on to it quickly	.797		
This website is well organized	.810		
SYSTEM AVAILABILITY		.842	.642
This website is always available for business	.819		
Launches and runs right away	.872		
Does not crash	.704		
DESIGN		.902	.697
Symbols/icons are readily identifiable	.810		
Layout enables the user to find important things at first sight	.796		
Everything is clearly arranged	.902		
Layout provides a clear structure	.829		
INFORMATION		.819	.602
This website provides information about prices	.807		
Up-to-date information	.793		
This website provides all the information necessary	.726		
OUTCOME QUALITY		.886	.721
You can trust they will meet what they offer on their website	.811		
Service performance is as desired	.878		
Service performance is absolutely reliable	.857		
PRIVACY		.841	.639
This website protects information about my Web-shopping behavior	.804		
It does not share my personal information with other sites	.766		
Protects information about my credit card	.826		
ENJOYMENT		.861	.758
Using this website invites you to stay	.805		
Using this website is fun	.931		
PAYMENT EQUITY		.854	.747
Satisfied with the prices on this website	.945		
What do you think about the prices on this website being 0 too high and 10 excellent?	.775		
INNOVATIVENESS		.930	.728
Other people come to you for advice on new technologies	.841		
I know more about the newest technologies than people around me	.904		
I am among the first people around me to know when a new technology appears	.895		
I keep up with the latest technological developments on products I am interested in	.806		
I have fewer problems than other people in making technological devices work	.815		
SOCIAL EXPERTISE		.803	.578
People around me know much about how to acquire this product/service online	.666		
I usually speak with colleagues and friends about how to use the internet for this product/serv.	.822		
I get useful information on the internet through colleagues and friends	.785		
COGNITIVE EFFORT		.719	.561
Can find this product/service on the internet without much effort	.729		

Can immediately identify the product/service I want even if mixed with others that are similar																		.768	
ANALYSIS																		.703	.543
Enjoy learning and knowing about this product/service																		.754	
Like to search for the latest information on this product/service before buying it																		.719	
ELABORATION																		.798	.568
Have enough knowledge so as to know that there is truth in advertising for this prod./serv.																		.749	
After collecting the information I need, I find it easy to know which is the best product/service among those offered on the site																		.770	
Dimensions	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
1. Efficiency	.652	.537	.482	.476	.297	.194	.252	.163	.008	.052	.336	.195	.215	.142	.347	.417	.311	.247	
2. System Availabil.	.733	.642	.361	.341	.234	.253	.149	.140	.013	.029	.144	.130	.179	.086	.306	.345	.287	.239	
3. Design	.694	.601	.697	.521	.340	.219	.338	.141	.021	.073	.315	.192	.216	.136	.350	.453	.321	.247	
4. Information	.690	.584	.722	.602	.480	.266	.200	.220	.014	.068	.371	.165	.286	.136	.534	.537	.496	.420	
5. Outcome Quality	.545	.484	.583	.693	.721	.333	.132	.251	.015	.071	.301	.101	.202	.077	.491	.566	.415	.350	
6. Privacy	.440	.503	.468	.516	.577	.639	.092	.141	.014	.120	.238	.106	.205	.107	.320	.341	.272	.237	
7. Enjoyment	.502	.386	.581	.447	.363	.304	.758	.141	.020	.037	.106	.142	.086	.047	.220	.268	.283	.224	
8. Payment Equity	.404	.374	.375	.469	.501	.375	.375	.747	.031	.093	.182	.090	.151	.086	.360	.551	.419	.375	
9. Innovativeness	.089	.114	.144	.119	.124	.120	.141	.176	.728	.036	.027	.117	.106	.075	.017	.057	.034	.024	
10. Social Expertise	.229	.169	.270	.260	.266	.346	.193	.305	.190	.578	.134	.103	.121	.094	.077	.166	.104	.105	
11. Cognitive Effort	.580	.379	.561	.609	.549	.488	.325	.427	.163	.366	.561	.480	.640	.388	.283	.442	.331	.252	
12. Analysis	.442	.360	.438	.406	.318	.325	.377	.300	.342	.321	.693	.543	.605	.416	.144	.242	.173	.157	
13. Elaboration	.464	.423	.465	.535	.449	.453	.294	.388	.325	.348	.800	.778	.568	.526	.237	.358	.238	.201	
14. Memory	.377	.293	.369	.369	.277	.327	.216	.293	.274	.306	.623	.645	.725	.730	.108	.199	.154	.097	
15. Overall e-SQ	.589	.553	.592	.731	.701	.566	.469	.600	.130	.278	.532	.380	.487	.329	.813	.635	.540	.498	
16. Value	.646	.587	.673	.733	.732	.584	.518	.742	.238	.408	.665	.492	.598	.446	.797	.579	.764	.766	
17. Satisfaction	.558	.536	.567	.704	.644	.522	.532	.647	.185	.322	.575	.416	.488	.392	.735	.874	.778	.845	
18. Behav. Intentions	.497	.489	.497	.648	.592	.487	.473	.612	.154	.324	.502	.396	.448	.312	.706	.875	.919	.814	
Correlations between constructs pairs are shown below the diagonal.																			
Shared variances between each construct and other constructs (correlations squared) in the model are shown above the diagonal (in percentage).																			
Note: CR, Composite Reliability; AVE, Average Variance Extracted																			

Discriminant validity (i.e. each dimension represents a significantly different underlying concept) was tested utilizing the most demanding form of verification (see, e.g., Hair et al. 2010). This form requires that the squared correlation between two factors be lower than the AVE for each variable. Table 2 shows the results for the assessment of discriminant validity.

Table 2
Correlation Matrix for Discriminant Validity Assessment

The diagonal includes the Average Variance Extracted (AVE) for each construct with respect to its indicators (in percentage).

Most of the comparisons between construct pairs meet the requirements of the criteria, except in six cases (see values in bold in the table). So, in order to find evidence for discriminant validity two less strict tests were carried out with problematic construct pairs. As shown in Table 3 both methods revealed evidence of discriminant validity. First, it was verified that the confidence interval around the correlation between pairs of dimensions did not contain the value 1. Secondly, the correlation between each pair of latent factors was constrained to one, and was compared with a model where this parameter was freely estimated. In all cases, the performed χ^2 Difference Tests were proved satisfactory.

The model shows a reasonable fit to the data, with $\chi^2_{(1121)} = 1401.069$, Non-normed Fit Index (NNFI) = .969, Comparative Fit Index (CFI) = .974 (above Hu and Bentler's (1999) recommended value of .95), and Root Mean Squared Error of Approximation (RMSEA) = .023 (lower than .8) (see Table 1).

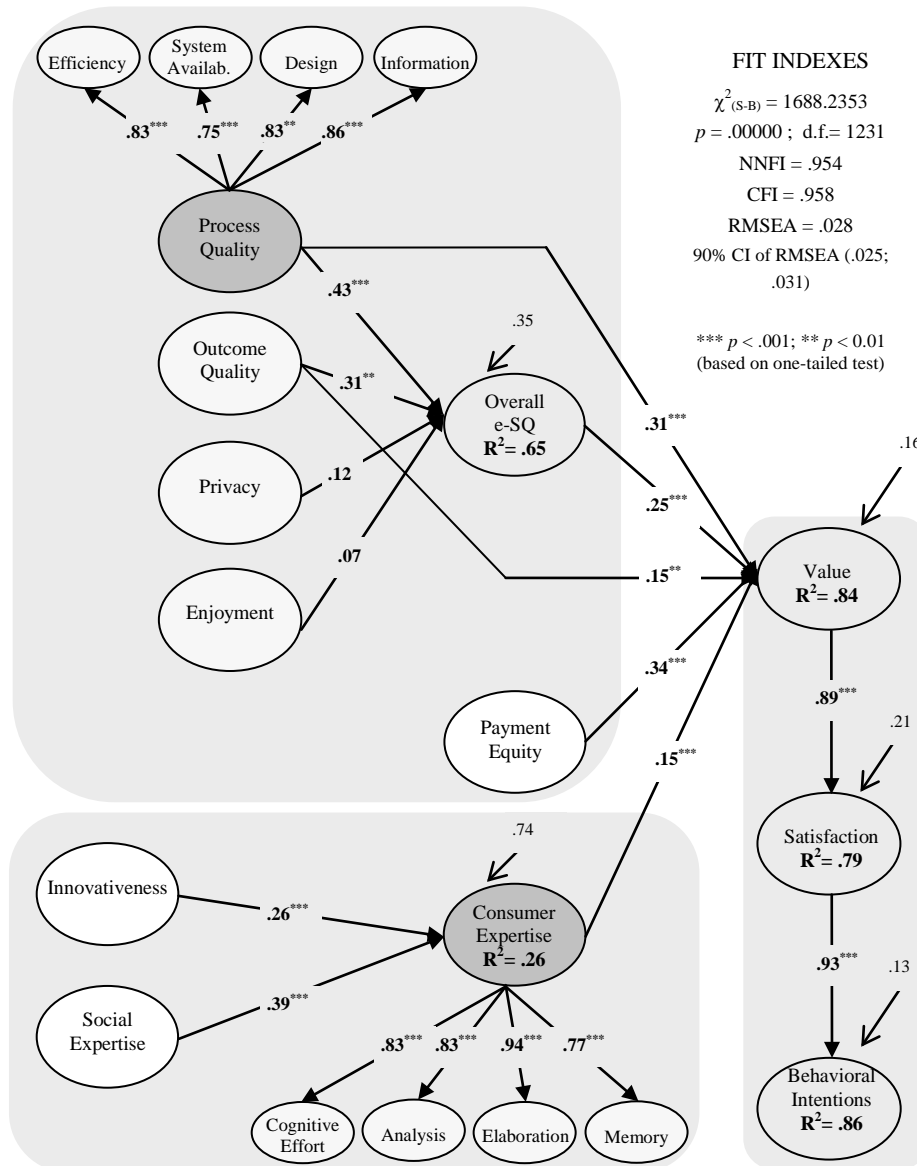
Table 3
Further Evidence on Discriminant Validity

Correlations squared exceeding AVE	r^2	r	Conf. Inter. 95%	Test Differences of χ^2 (d.f. =1)
Overall e-SQ ↔ Value	.635	.797	(.727 , .867)	93.17
Value ↔ Satisfaction	.764	.874	(.806 , .942)	42.48
Value ↔ Behav. Intentions	.766	.875	(.799 , .951)	53.48
Satisfaction ↔ Behav. Intentions	.845	.919	(.881 , .957)	36.70
Cognitive Effort ↔ Elaboration	.640	.800	(.704 , .896)	31.74
Analysis ↔ Elaboration	.605	.778	(.680 , .876)	33.40

5.2. Assessment of the Structural Model

The results of the general model estimation, together with the fit indexes are shown in Figure 2.

FIGURE 2
Structural Model Estimation



As we can see all the proposed causal relationships are supported. In the case of the hypothesis formulated as competitive, a non-significant effect of security/privacy and enjoyment in overall e-SQ is supported (as proposed in H3b and H4b). The obtained fit indexes are around the recommended limits (see Figure 2). Overall e-SQ, payment equity and consumer expertise were found to have a positive and significant influence on value, with standardized parameter estimates of .25, .34, and .15 respectively. Moreover, process quality and outcome quality have a direct effect on value (with loadings of .31 and .15) and an indirect effect through overall e-SQ (.11 and .08), making total effects of .42 and .23.

In addition, both innovativeness and social expertise were proved to be significant predictors of consumer expertise. Consumer expertise and process quality were demonstrated to be second order constructs with four first order dimensions each one. Besides, as Figure 2 shows, the model proposed appears to satisfactorily explain the data variance. A substantial proportion of variance in each construct of the value-satisfaction-behavioral intentions chain is explained (84%, 79% and 86% respectively). The variance for overall e-SQ is also reasonably explanatory, presenting an R^2 value of 65%. As expected, the R^2 value for consumer expertise is lower (26%) because factors as intelligence, education and so forth are not considered in this research.

6. CONCLUSIONS

Value is co-created by the integration of the knowledge of customers and the embodied knowledge of firms (S-D logic and Service Science), or created by the consumer and facilitated by the company (Service logic). We provide evidence to support the above views. This research analyzes the context of electronic commerce and shows that the greater the consumer expertise and the knowledge contributed by the firm (in the shape of e-SQ and payment equity), the higher is the value achieved by the consumer. However, our research also shows that the relevance of consumer knowledge in value creation should not be overemphasized. Overall, the embodied knowledge of firms and payment equity prove to be more important than consumer expertise in the explanation of value. Whilst consumer expertise may be important to achieve the maximum value of a car or a computer, expert consumers can do little if the car's engine and the computer's battery are poor. Expert consumers can also be caught out by Websites that are slow to load or whose information is wrong or outdated.

Our model incorporates two main antecedents of consumer expertise in an electronic commerce context: innovativeness and social expertise. As innovators have broader and more diverse Internet experience they tend to achieve a high degree of expertise. The effect of innovativeness on value is not direct but mediated by expertise. For instance, innovativeness does not guarantee enough knowledge of diverse investment funds and their implications. Social expertise (i.e. the possibility that consumers receive intelligent peer social support for electronic commerce purposes) also appears to have a positive significant effect on consumer expertise. This result is consistent with recent literature that emphasizes the social dimension of the Internet.

In relation to e-SQ this research suggests that both process quality and outcome quality (fulfillment) dimensions are significant and relevant in explaining overall service quality. This research also contributes some insights that could usefully inform current debates in e-SQ literature. In particular, results show that privacy and enjoyment do not have a significant effect on the overall service quality perceived by the consumer. This research confirms that e-SQ seems to be more important than price in explaining value, but the different effect of both variables (i.e. payment equity and e-SQ) is not as relevant as previous studies seem to suggest.

7. IMPLICATIONS, LIMITATIONS AND DIRECTIONS FOR FUTURE RESEARCH

This research suggests that e-SQ and consumer expertise are main drivers of value creation. We could then infer that firms should consider the suitability of investing in e-SQ-related knowledge, and also, in initiatives to enhance the level of expertise of their consumers. Experts achieve more value and satisfaction and, as a consequence, show more positive behavioral intentions. This approach is consistent with the suggestion that firms should become involved in the education of their customers (Sharma and Patterson 1999; Burton 2002). By providing customers with opportunities to learn more, companies enhance their knowledge in purchasing, using, operating, modifying, and/or repairing a product (Blazevic and Lievens 2008), and this could contribute shareholder value.

Our results support the idea that firms should put motivational mechanisms in place (Nambisan and Baron 2009) to induce expert consumers to participate in virtual consumer communities. These online groups of customers who collectively coproduce and consume information about a shared item of interest, allow customers to participate in rich exchanges with the company and/or among themselves, and help companies identify problem areas (Blazevic and Lievens 2008; Spaulding 2010). Participants do not only inform firms about problem areas but also make suggestions and provide solutions and thereby coproduce new knowledge. This research is also consistent with the more radical perspective of considering consumers as (partial) employees (see e.g. Bowen 1986; Schneider and Bowen 2010). Schneider and Bowen (2010) state firms should not only educate their customers, but consider them as human resources that need to be carefully selected, trained well, highly motivated and carefully appraised -and helped when they fail to do their job.

Although this research finds consistent effects suggesting that consumer expertise has an influence on determining value related outcomes, the study has some limitations. We consider an e-SQ context to prove the effect of consumer expertise on value. Replication in different contexts can provide greater confidence in the generalizability of the current results. We use a subjective measure of consumer expertise. Future research could consider objective measures. This research considers behavioral intentions instead of effective behavioral loyalty. Parasuraman et al. (2005) state that two different scales are necessary in order to capture e-SQ: the basic e-SQ scale and a scale for measuring the quality of the recovery service provided by Websites. Future research could consider the effect of expertise within a context of recovery.

References

- ALBA, J. W., AND HUTCHINSON, J. W. (1987), "Dimensions of Consumer Expertise," *Journal of Consumer Research*, 13, 411–454.
- ANDERSON, E. T., AND SIMISTER, D. I. (2008), "Price Cues and Customer Price Knowledge," in V. R. Rao (Ed.), *Handbook of Pricing Research in Marketing* (pp. 150–166), Cheltenham, GL: Edward Elgar Publishing Limited.
- ARROW, K. J. (1962), "The Economic Implications of Learning by Doing," *The Review of Economic Studies*, 29, 155–173.
- BARRUTIA, J. M., CHARTERINA, J., AND GILSANZ, A. (2009), "E-Service Quality: An Internal, Multichannel and Pure Service Perspective," *The Service Industries Journal*, 29, 1707–1721.
- BARRUTIA, J. M., AND GILSANZ, A. (2009), "E-Service Quality: Overview and Research Agenda," *International Journal of Quality and Service Sciences*, 1, 29–50.
- BAUER, H. H., FALK, T., AND HAMMERSCHMIDT, M. (2006), "A Transaction Process-based Approach for Capturing Service Quality in Online Shopping," *Journal of Business Research*, 59, 866–875.
- BLAZEVIC, V., AND LIEVENS, A. (2008), "Managing Innovation Through Customer Coproduced Knowledge in Electronic Services: An Exploratory Study," *Journal of the Academy of Marketing Science*, 36, 138–151.
- BOLTON, R. N., KANNAN, P. K., AND BRAMLETT, M. D. (2000), "Implications of Loyalty Program Membership and Service Experiences for Customer Retention and Value," *Journal of the Academy of Marketing Science*, 28, 95–108.
- BOLTON, R. N., AND LEMON, K. N. (1999), "A Dynamic Model of Customers' Usage of Services: Usage as an Antecedent and Consequence of Satisfaction?" *Journal of Marketing Research*, 36, 171–186.
- BOWEN, D. E., (1986), "Managing Customers as Human Resources in Service Organizations," *Human Resource Management*, 25, 371–383.
- BRADY, M.K., KNIGHT, G.A., CRONIN JR., J.J., HULT, T.M., AND KEILLOR, B.D. (2005), "Removing the Contextual Lens: A Multinational, Multi-Setting Comparison of Service Evaluation Models," *Journal of Retailing*, 81, 215–230.
- BRISTOR, J. M. (1990), "Enhanced Explanations of Word of Mouth Communications: The Power of Relationships," *Research in Consumer Behavior*, 4, 51–83.
- BURTON, D. (2002), "Consumer Education and Service Quality: Conceptual Issues and Practical Implications," *Journal of Services Marketing*, 16, 125–142.
- BYRNE, B. M. (2006), *Structural Equation Modeling with EQS: Basic Concepts, Applications, and Programming (Multivariate Applications)*, 2nd edition. New Jersey: Lawrence Erlbaum Associates.
- CHIOU, J. S., AND DROGE, C. (2006), "Service Quality, Trust, Specific Asset Investment, and Expertise: Direct and Indirect Effects in a Satisfaction-Loyalty Framework," *Journal of the Academy of Marketing Science*, 34, 613–627.
- COLEMAN, J. S. (1988), "Social Capital in the Creation of Human Capital," *The American Journal of Sociology*, 94, 95–120.
- COLLIER, J. E., AND BIENSTOCK, C. C. (2003), "E-Service Quality: Understanding the Dimensions of Quality for Online Shopping Experiences," in *Developments in Marketing Science*, Volume XXVI, Harlan E. Spotts eds. Washington D.C.: Academy of Mk Science, 158–162.
- COLLIER, J. E., AND BIENSTOCK, C. C. (2006), "Measuring Service Quality in E-Retailing," *Journal of Service Research*, 8, 260–275.
- COLLIER, J. E., AND BIENSTOCK, C. C. (2009), "Model Misspecification: Contrasting Formative and Reflective Indicators for a Model of E-Service Quality," *Journal of Marketing Theory and Practice*, 17, 283–293.
- CRONIN, J. J. JR., AND TAYLOR, S. A. (1992), "Measuring Service Quality: A Reexamination and Extension," *Journal of Marketing*, 56, 55–68.
- EISINGERICH, A. B., AND BELL, S. J. (2008), "Perceived Service Quality and Customer Trust. Does Enhancing Customers' Service Knowledge Matter?" *Journal of Service Research*, 10, 256–268.
- ERICKSON, G. M., AND JOHANSSON, J. K. (1985), "The Role of Price in Multi-attribute Product Evaluations," *Journal of Consumer Research*, 12, 195–199.
- ESTELAMI, H., LEHMANN, D. R., AND HOLDEN, A.C. (2001), "Macro-economic Determinants of Consumer Price Knowledge: A Meta-analysis of Four Decades of Research," *International Journal of Research in Marketing*, 18, 341–355.

- FASSNACHT, M., AND KOESE, I. (2006), "Quality of Electronic Services: Conceptualizing and Testing a Hierarchical Model," *Journal of Service Research*, 9, 19–37.
- FISHBEIN, M., AND AJZEN, I. (1975), *Belief, Attitude, Intention, and Behavior: An Introduction to Theory and Research*. Reading, MA: Addison-Wesley.
- FORNELL, C., AND LARCKER, D. F. (1981), "Evaluating Structural Equation Models with Unobservable Variables and Measurement Error," *Journal of Marketing Research*, 18, 39–50.
- GERBING, D. W., AND ANDERSON, J. C. (1988), "An Updated Paradigm for Scale Development Incorporating Unidimensionality and its Assessment," *Journal of Marketing Research*, 25, 186–192.
- GOLDMANIS, M., HORTAÇSU, A., SYVERSON, C., AND EMRE, O. (2010), "E-Commerce and the Market Structure of Retail Industries," *Economic Journal*, 120, 651–682.
- GOLDSMITH, R. E., AND HOFACKER, C. F. (1991), "Measuring Consumer Innovativeness," *Journal of the Academy of Marketing Science*, 19, 209–221.
- GOTLIEB, J. B., GREWAL, D., AND BROWN, S. W. (1994), "Customer Satisfaction and Perceived Quality: Complementary or Divergent Constructs?" *Journal of Applied Psychology*, 79, 875–885.
- GREWAL, D., MONROE, K. B., AND KRISHNAN, R. (1998), "The Effects of Price Comparison Advertising on Buyers, Perceptions of Acquisition Value, Transaction Value, and Behavioral Intentions," *Journal of Marketing*, 62, 46–59.
- GRÖNROOS, C. (1983), *Strategic Management and Marketing in the Service Sector*, Cambridge, MA: Marketing Science Institution.
- GRÖNROOS, C. (2006), "Adopting a Service Logic for Marketing," *Marketing Theory*, 6, 317–333.
- GRÖNROOS, C., AND HELLE, P. (2010), "Adopting a Service Logic in Manufacturing: Conceptual Foundation and Metrics for Mutual Value Creation," *Journal of Service Management*, 21, 564–590.
- GRÖNROOS, C., AND RAVALD, A. (2009), "Marketing and the Logic of Service: Value Facilitation, Value Creation and Co-creation, and Their Marketing Implications," *Working papers series of Hanken School of Economics Finland*.
- GRUEN, T. W., OSMONBEKOV, T., AND CZAPLEWSKI, A. (2007), "Customer-to-Customer Exchange: Its MOA Antecedents and its Impact on Value Creation and Loyalty," *Journal of the Academy of Marketing Science*, 35, 537–549.
- HAIR, J., BLACK, W., BABIN, W., AND ANDERSON, R. (2010), *Multivariate Data Analysis* (7th edition), Upper Saddle River, NJ: Prentice-Hall.
- HEINONEN, K. (2007), "Conceptualising Online Banking Service Value," *Journal of Financial Services Marketing*, 12, 39–52.
- HUTCHINSON, J. W. (1983), "Expertise and the Structure of Free Recall," in R. P. Bagozzi and A. M. Tybout (Eds.), *Advances in Consumer Research*, 10, (pp. 585–589),
- KLEISER, S. B., AND MANTEL, S. P. (1994) "The Dimensions of Consumer Expertise: A Scale Development," in R. Achrol and A. Mitchell (Eds.), *AMA Summer Educators' Proceedings* (pp. 20–26), Chicago: American Marketing Association.
- LAM, S. Y., CHIANG, J., AND PARASURAMAN, A. (2008), "The Effects of the Dimensions of Technology Readiness on Technology Acceptance: An Empirical Analysis," *Journal of Interactive Marketing*, 22, 19–39.
- LICHTENSTEIN, D. R., RIDGWAY, N. M., AND NETEMEYER, R. G. (1993), "Price Perceptions and Consumer Shopping Behavior: A Field Study," *Journal of Marketing Research*, 30, 234–245.
- LOIACONO, E. T., WATSON, R. T., AND GOODHUE, D. L. (2002), "WEBQUAL: A Measure of Website Quality," in K. Evans and L. Scheer (Eds.), *Marketing Educators' Conference: Marketing Theory and Applications*, 13, (pp. 432–437), Chicago, IL: American Marketing Association.
- MCFADYEN, M. A., AND CANNELLA JR., A. A. (2004), "Social Capital and Knowledge Creation: Diminishing Returns of the Number and Strength of Exchange Relationships," *Academy of Management Journal*, 47, 959–979.
- MEUTER, M. L., OSTROM, A. L., ROUNDTREE, R. I., AND BITNER, M. J. (2000), "Self-Service Technologies: Understanding Customer Satisfaction with Technology-based Service Encounters," *Journal of Marketing*, 64, 50–64.
- MONTOYA-WEIS, M., VOSS, G., AND GREWAL, D. (2003), "Determinants of Online Channel Use and Overall Satisfaction with a Relational, Multichannel Service Provider," *Journal of the Academy of Marketing Science*, 31, 448–458.
- NAMBISAN, S., AND BARON, R. A. (2009), "Virtual Customer Environments: Testing a Model of Voluntary Participation in Value Co-creation Activities," *Journal of Product Innovation Management*, 26, 388–406.
- NEWMAN, J. W., AND STAELIN, R. (1973), "Information Sources of Durable Goods," *Journal of Advertising*, 13, 19–29.
- PARASURAMAN, A. (2000), "Technology Readiness Index (TRI): A Multiple-item Scale to Measure Readiness to Embrace New Technologies," *Journal of Service Research*, 2, 307–320.
- PARASURAMAN, A., ZEITHAML, V. A., AND BERRY, L. L. (1985), "A Conceptual Model of SQ and Its Implications for Future Research," *Journal of Marketing*, 49, 41–50.
- PARASURAMAN, A., ZEITHAML, V. A., AND BERRY, L. L. (1988), "SERVQUAL: A Multiple-Item Scale for Measuring Consumer Perceptions of Service Quality," *Journal of Retailing*, 64, 12–40.
- PARASURAMAN, A., ZEITHAML, V. A., AND MALHOTRA, A. (2005), "E-S-QUAL: A Multiple-Item Scale for Assessing Electronic Service Quality," *Journal of Service Research*, 7, 213–233.
- PARASURAMAN, A., AND ZINKHAN, G. (2002), "Marketing To and Serving Customers Through the Internet: An Overview and Research Agenda," *Journal of the Academy of Marketing Science*, 30, 286–295.
- PARK, Y. A., AND GRETZEL, U. (2007), "Success Factors for Destination Marketing Web Sites: A Qualitative Meta-Analysis," *Journal of Travel Research*, 46, 46–63.

- REICHHELD, F. F., AND SCHEFTER, P. (2000), "E-Loyalty: Your Secret Weapon on the Web," *Harvard Business Review*, 78, 105–113.
- SARASON, I. G., LEVINE, H. M., BASHAM, R. B., AND SARASON, B. R. (1983), "Assessing Social Support: The Social Support Questionnaire," *Journal of Personality and Social Psychology*, 44, 127–139.
- SATORRA, A. AND BENTLER, P. M. (1994), "Corrections to Test Statistics and Standard Errors in Covariance Structure Analysis," in A. Von Eye and C. C. Clogg (Eds.), *Latent Variable Analysis* (pp. 399–419), Thousand Oaks, California: SAGE.
- SCHNEIDER, B., AND BOWEN, D. E. (2010), "Winning the Service Game. Revisiting the Rules by Which People Co-Create Value," in P. P. Maglio, C. Kieliszewski and J. C. Spohrer (Eds.), *Handbook of Service Science: Research and Innovations in the Service Economy*, (pp. 31–59), New York: Springer.
- SHARMA, N., AND PATTERSON, G. P. (1999), "The Impact of Communication Effectiveness and Service Quality on Relationship Commitment in Consumer, Professional Services," *Journal of Services Marketing*, 13, 151–170.
- SPAULDING, T. J. (2010), "How can virtual communities create value for business?" *Electronic Commerce Research and Applications*, 9, 38–49.
- SPOHRER, J., MAGLIO, P. P., BAILEY, J., AND GRUHL, D. (2007), "Steps Toward a Science of Service Systems," *Computer*, 40, 71–77.
- SPOHRER, J., VARGO, S. L., CASWELL, N., AND MAGLIO, P. P. (2008), "The Service System is the Basic Abstraction of Service Science," in *Proceedings of the 41st Annual Hawaii International Conference on System Science*, January, p. 104.
- URUEÑA, A. (COORD.), FERRARI, A., VALDECASA, E., BALLESTERO, M. P., ANTÓN, P., CASTRO, R., AND CADENAS, S. (2010), "Spain Telecommunications and Information Technology Sector Report 2010," available at http://www.ontsi.red.es/articles/detail.action?id=4877andrequest_locale=es, last access, 8 December, 2010.
- VAN BEUNINGEN, J., DE RUYTER, K., WETZELS, M., AND STREUKENS, S. (2009), "Customer Self-Efficacy in Technology-Based Self-Service: Assessing Between- and Within-Person Differences," *Journal of Service Research*, 11, 407–428.
- VARGO, S. L., AND LUSCH, R. F. (2004), "Evolving to a New Dominant Logic for Marketing," *Journal of Marketing*, 68, 1–17.
- VARGO, S. L., AND LUSCH, R. F. (2006), "Service-Dominant logic: What it is, what it is not, what it might be," in R. F. Lusch, and S. L. Vargo (Eds.), *The service-dominant logic of marketing: Dialog, debate, and directions* (pp. 43–56), Armonk, NY: ME Sharpe.
- VARGO, S. L., AND LUSCH, R. F. (2008), "Service-Dominant logic: Continuing the Evolution," *Journal of the Academy of Marketing Science*, 36, 1–10.
- VARGO, S. L., MAGLIO, P. P., AND AKAKA, M. A. (2008), "On Value and Value Co-creation: A Service Systems and Service Logic Perspective," *European Management Journal*, 26, 145–152 (lead article),
- VARKI, S., AND COLGATE, M. (2001), "The Role of Price Perceptions in an Integrated Model of Behavioral Intentions," *Journal of Service Research*, 3, 232–240.
- VERHOEF, P. C., FRANCES, P. H., AND HOEKSTRA, J. C. (2002), "The Effect of Relational Constructs on Customer Referrals and Number of Services Purchased from a Multiservice Provider: Does Age of Relationship Matter?" *Journal of the Academy of Marketing Science*, 30, 202–212.
- WOLFINBARGER, M., AND GILLY, M. C. (2003), "eTailQ: Dimensionalizing, Measuring and Predicting eTail Quality," *Journal of Retailing*, 79, 183–198.
- YANG, Z., CAI, S., ZHOU, Z., AND ZHOU, N. (2005), "Development and Validation of an Instrument to Measure User Perceived Service Quality of Information Presenting Web Portals," *Information and Management*, 42, 575–589.
- YANG, Z., JUN, M., AND PETERSON, R. T. (2004), "Measuring Customer Perceived Online Service Quality. Scale Development and Managerial Implications," *International Journal of Operations and Production Management*, 24, 1149–1174.
- YANG, Z., PETERSON, R. T., AND CAI, S. (2003), "Services Quality Dimensions of Internet Retailing: An Exploratory Analysis," *Journal of Services Marketing*, 17, 685–700.
- YI, Y., AND GONG, T. (2008), "The Electronic Service Quality Model: The Moderating Effect of Customer Self-Efficacy," *Psychology and Marketing*, 25, 587–601.
- YOUNG, S., AND FEIGEN, B. (1975), "Using the Benefit Chain for Improved Strategy Formulation," *Journal of Marketing*, 39, 72–74.
- ZEITHAML, V. A. (1988), "Consumer Perceptions of Price, Quality and Value: A Means-End Model and Synthesis of Evidence," *Journal of Marketing*, 52, 2–22.
- ZEITHAML, V. A., BITNER M. J., AND GREMLER, D. D. (2009), *Services Marketing: Integrating Customer Focus Across the Firm*. 5th Ed. Boston: McGraw-Hill/Irwin.
- ZEITHAML, V.A., PARASURAMAN, A., AND MALHOTRA, A. (2000), "E-Service Quality: Definition, Dimensions and Conceptual Model," working paper. Cambridge, MA: Marketing Science Institute.
- ZEITHAML, V. A., PARASURAMAN, A., AND MALHOTRA, A. (2002), "Service Quality Delivery Through Web Sites: A Critical Review of Extant Knowledge," *Journal of the Academy of Marketing Science*, 30, 362–375.