

Alves, Helena; Ferreira, João J. M.; Fernandes, Cristina Isabel

Article

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Empirical paper

Customer's operant resources effects on co-creation activities



Helena Alves^{a,*}, João José Ferreira^a, Cristina Isabel Fernandes^b

^a Department of Business and Management, University of Beira Interior and NECE – Research Unit of Business Sciences, Covilhã, Portugal

^b Polytechnic Institute of Castelo Branco and NECE – Research Unit of Business Sciences, Covilhã, Portugal

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ABSTRACT

This study analyses the influence of client operant resources, in the form of self-efficacy, bridging social capital and customer expertise, on co-creation activities with companies and the customer resulting perceived benefits. A quantitative study, based on a sample of 362 consumers was carried out to test a model that sets out the relationships among the variables in analysis. The results demonstrate not only how operant resources do effectively contribute towards explaining a certain percentage of the variation in customer co-creation activities, but also how this resources influence gets boosted by the efforts companies make to educate their customers. The results also show that co-creation with the firm enhances customer perceived benefits.

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Los recursos operantes de los clientes y sus efectos en las actividades de co-creación

RESUMEN

Este estudio analiza la influencia de los recursos operantes del cliente, en la forma de auto-eficacia, de capital social que sirve de puente, y de experiencia del cliente en las actividades de co-creación con las empresas y en el resultado de los beneficios percibidos por dicho cliente. Se llevó a cabo un estudio cuantitativo basado en una muestra de 362 consumidores para testar el modelo que establece las relaciones entre las variables del análisis. Los resultados no solo demuestran cómo los recursos operantes efectivamente contribuyen en la explicación de un cierto porcentaje de la variación en las actividades de co-creación del

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* Corresponding author.

E-mail address: halves@ubi.pt (H. Alves).

cliente, sino que también cómo estos recursos influyen consiguiendo impulsar los esfuerzos que las compañías hacen para educar a sus clientes. Los resultados también muestran que las actividades de co-creación con la empresa se transforman en beneficios percibidos por los clientes.

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Introduction

Value co-creation has become a key concept within service marketing and business management (Saarijärvi, Kannan, & Kuusela, 2013) and has become a widely used term to describe a shift in thinking from the organisation as a definer of value to a more participative process where people and organisations together generate and develop meaning (Ind & Coates, 2013).

The Service-Dominant (S-D) logic introduced by Vargo and Lusch (2004) brought with it a new approach to the creation of value in which the latter now results from a joint production process involving both the company and the customer (Prahalad & Ramaswamy, 2004a, 2004b). In this new approach, the suppliers apply their knowledge and capacities to the production and branding of a product or service and the customers apply their own knowledge and capacities to its daily usage (Vargo, Maglio, & Akaka, 2008).

This new logic defines service as the basis for the exchange of processes in which specialist competencies (knowledge and skills) are applied through the actions, processes and performances undertaken to the benefit of their own or another organisation (Vargo, 2008; Vargo & Lusch, 2008b). Thus, the operant resources, those capable of acting upon other resources, such as knowledge and skills, become the foundation stone for competitive advantage.

The S-D logic posits that companies and firms should conceive of their customers, suppliers and other stakeholders as operant resources in order to ensure collaborative co-production and co-creation prevail throughout their marketing and strategic programmes (Lusch & Vargo, 2009). Greater customer involvement in value creation processes leads to the integration of their skills and knowledge, thereby driving both new and important capacities (Prahalad & Ramaswamy, 2004b). According to Vargo et al. (2008), this co-creation of value process also fosters innovation and the evolution of market trends. At the same time the customer also benefits as he gets as close as possible to achieving exactly what he wants or to reduce costs as well as time and energy (Nuttavuthisit, 2010), thus attaining greater satisfaction (Vega-Vazquez, Ángeles Revilla-Camacho, & Cossío-Silva, 2013).

Organisations facilitating the active participation of customers in specific processes become able to reduce their resource investment levels (Payne, Storbacka, & Frow, 2008; Vargo et al., 2008). Therefore, customers emerge as one of the most valuable resources held by companies (Lusch & Vargo, 2009). However, the individual configuration of resources influences the way in which customers deploy their operand resources as well as what usage they make of company operand and operant resources (Arnould, Price, & Malshe, 2006).

Understanding how and in what ways customer resources actually influence their value co-creation becomes correspondingly fundamental. This debate has received only very limited attention in both theoretical and empirical terms. There is still a gap concerning the relationship of company support and customers levels of co-creation. This study thus seeks to establish the way in which customer operand resources influence the co-creation of value alongside whether or not companies are able to play important roles in developing these resources through customer education on service provision processes. To the author's best knowledge, this debate has received only very limited attention in both theoretical and empirical terms. As Grisseemann and Stokburger-Sauer (2012) state there is still a gap concerning the relationship of company support and customers levels of co-creation. In theoretical terms, this research study contributes by studying the ways in which companies might foster this process by raising customer resource levels. This study also contributes by analysing the relationship between co-creation and the resulting customer perceived benefits.

The customer value co-creation process and resources integration

Gummesson and Mele (2010) explain how the co-creation of value derives from the scope for interaction and the integration of resources. Consumers are integrated into social networks in which they exchange experiences that, in turn, shape their own experiences. Every social and economic actor has now effectively become an integrator of resources (Vargo & Lusch, 2008a).

Actors interact with other actors and apply their senses to determine just how and when to respond or act (Vargo & Lusch, 2010) and thereby establishing networks. In these networks, each actor plays different and differentiated social roles that serve as resources that are exchanged in searching out other socially desirable positions. To the extent to which social positions are built up, actors make recourse to them in order to obtain various resources within these value based networks (Akaka & Chandler, 2011). This network based interaction stimulates the integration of resources itself enabling value creation (Gummesson & Mele, 2010). The economic and social actors in a chain of value remain united in accordance with their shared and ongoing competences, mutual relationships and levels of information. Value networks remain united as each respective actor holds competences, relationships and shared information (Lusch, Vargo, & Tanniru, 2010).

Customer resources may be classified as either operand or operant (Arnould et al., 2006). Operand resources

represent tangible assets, for example, economic resources as well as products and raw materials over which customers wield powers of allocation. In turn, operant resources are generally invisible and intangible and shaped out of knowledge and capacities.

Operant resources held by each individual may be physical, social or cultural (Arnould et al., 2006; Baron & Harris, 2008; Baron & Warnaby, 2011). The physical resources include sensory motor endowment, energy, emotions and strength. In turn, cultural resources include specialised knowledge and skills, life expectancy and historic imagination. Social resources, in turn, are made up of both personal and cultural relationships. Hence, we may conclude that the operant resources of a customer are personally related and reflect individual capacities alongside socially interactive abilities. However, we equally verify that there has hitherto been no attempt to operationalise the individual resource concept within the context of co-creation. As Baron and Harris (2008) state customer resource integration requires further research.

In keeping with the social-cognitive theory of Bandura (1977), individual resources are susceptible to identification through individual perceptions of self-efficacy that are reflected in the choices and individual efforts put into practice by an individual. Thus, the perception of self-efficacy, in overall terms, reflects the individual perception as to their capacities to organise and implement specific actions that lead to certain levels of results (Bandura, 1998; Luszczynska, Gutiérrez-Doña, & Schwarzer, 2005). According to Luszczynska et al. (2005), persons displaying higher levels of self-efficacy opt to undertake more challenging tasks and demonstrate their abilities in exploring and exploiting challenges in the surrounding environment, setting new goals and coping better with all types of demands. Furthermore, Xie, Bagozzi, and Troye (2008) argue that value of creation activities put into practice by customers are hence a function of self-efficacy levels, among other factors. Therefore, we may correspondingly set out our first analytical hypothesis:

H1. The higher the customer self-efficacy levels the higher the level of his co-creation activities.

The same rationale may be applied to the social resources of an individual. According to social capital theory, the relational network of an individual, or his/her social network, as well as the resources embedded in the network, strongly influence the level of exchange and interpersonal knowledge and thus constitutes individual social capital levels (Nahapiet & Ghoshal, 1998). The social bonds are channels through which information and resources flow (Tsai & Ghoshal, 1998). From the perspective of Bourdieu and Wacquant (1992), social capital may therefore be defined as the total sum of resources that an individual or group receives due to the fact of belonging to a network whatever the actual extent of its institutionalisation. The underlying principle depicts how the social relations engaged in by individuals may prove an important source of resources (Coleman, 1988; Lin, 1999). In fact, Chiu, Hsu, and Wang (2006) demonstrate how the diverse facets to social capital positively correlate with the quantity and quality of knowledge shared by the members of the network while Tsai

and Ghoshal (1998) verify how social capital facilitates value creation.

However, there are different types of relationships between the different types of social capital (Williams, 2006). Putnam (2000) distinguishes between two types of individual social capital: bonding social capital and bridging social capital. Bonding social capital may be found in the relationships between individuals in networks closer to the individual such as family and friends and above all incorporating an emotional support component while bridging social capital refers to the weakest bond held by individuals but which may still provide useful and new information and perspectives. According to Granovetter (1973), the weakest relationships, hence, those conveying bridging social capital, drive access to non-redundant information. They broaden the social horizon and the global vision of the world and open up opportunities to new information and resources (Putnam, 2000), and may therefore be identified as making the greatest contribution to individual capacities to get involved in co-creation activities. We therefore might expect that the customer bridging social capital contributes positively to enhance customer's levels of co-creation activities by enhancing customers' self-efficacy. However, as far as our knowledge, the influence of bridging social capital on co-creation activities has never been tested. In this sense, the following hypotheses might be established:

H2. Customers' levels of bridging social capital positively enhance customer's self-efficacy levels and therefore indirectly customer's levels of co-creation activities.

The integration of customer resources and the role of the company

According to Ngo and O'Cass (2010), organisations need to define the architecture for the creation of value, this is, engaging in the correct actions. Therefore, organisations require the appropriate strategic positioning and business guidelines that incorporate the leveraging of internal knowledge, skills and resources for the development of processes enabling the integration of customer resources in the co-creation of value (Nenonen & Storbacka, 2010; Payne et al., 2008). The task of marketing becomes that of supporting customer value creation processes (Grönroos & Ravald, 2011; Lusch & Webster, 2011), and organisations are thus facilitators of value and not its creators (Grönroos, 2008, 2011; Storbacka, Frow, Nenonen, & Payne, 2012). When creating interactive contacts with customers during their use of goods and services, the firm develops opportunities to co-create value with them and for them and to influence their value fulfilment (Grönroos, 2008).

Customers are active entities able to co-develop and personalise their relationships with suppliers and adopt a diversified range of different roles and hence their performances depend on the capacity of suppliers to add resources, in terms of their competences and capacities, to the total resource set held by the customer as well as their capacities to influence company customer processes to ensure their ability to utilise the resources available in the most efficient and effective ways (Nuttavuthisit, 2010; Payne et al., 2008; Storbacka et al., 2012).

In order to co-create value, suppliers need to mobilise resources and deploy their capacities in ways susceptible of generating activities for which the resources relevant to the customer mission may be integrated into customer practices (Storbacka et al., 2012).

Companies may complement customer capacities and skills through training and education and thus boosting their scope for co-creation. The greater the level of customer understanding about the opportunities available, the greater the value susceptible to co-creation (Payne et al., 2008). Letting customers complement their skills and knowledge will foster creation practices (Nuttavuthisit, 2010). Through educating customers, companies endow them with the capacities and abilities necessary to co-produce a service (Burton, 2002; Eisingerich & Bell, 2006). Therefore, we arrive at the following hypothesis:

H3. The greater the company effort in educating the customer, the greater the co-creation of value undertaken by the customer.

According to Eisingerich and Bell (2006), company-customer relationships based on effective support and the resolution of problems prove better able to motivate customer participation in the rendering of services. Customer education centres around conveying capacities to customers in ways enabling the latter to apply the information supplied (Bitner, Faranda, Hubert, & Zeithaml, 1997), with Ojasalo (2001) defining this as the overall customer capacity to use the services acquired and draw benefits from them. Bell and Eisingerich (2007) propose that customers with higher levels of expertise are able to process more complex levels of information. Auh, Bell, McLeod, and Shih (2007) verify how customer expertise leads not only to greater customer participation in the production of services but also a higher level of ability to make valuable contributions to service production. Hence, we may correspondingly conceive that greater efforts to educate the customer on what the service/product revolves around the greater the customer operant resources and consequently the greater his co-creation levels and in this sense the following hypotheses may be established:

H4. The greater the company effort in educating the customer, the greater the customer expertise.

H5. The greater the level of customer expertise, the greater the co-creation of value undertaken.

H6. The greater the level of customer expertise, the greater the co-creation of value undertaken through self-efficacy perception enhancement.

Co-creation and customer benefits

Customer co-creation activities may be divided up into participation and creation (Lusch & Vargo, 2006; Nuttavuthisit, 2010). Participation refers to the cooperation of customers following an invitation issued by the company to become actively involved in the process of creating with the actual actions

structured and determined by the company. In turn, creation is, in the main, determined by the customer when becoming proactive in the creation of value through the utilisation of goods. Furthermore, Nuttavuthisit (2010) also proposes that the value gained by the customer from co-creation may also be seen within the framework of how both participation and co-creation stem from the goal of generating benefits whether for oneself or for others (Fig. 1).

Hence, while customers participate in company activities with the objective of gaining benefits for themselves, this still draws them in as closely as possible to attaining exactly the goals set, whether lower costs, better adaptation, greater speed of service, higher levels of convenience or greater brand differentiation. In turn, whenever customers engage in creation activities for themselves, these shall complement their capacities and knowledge with the company's own resources and thereby receiving a broader scope of benefits than those resulting from mere participation and extending to psychological benefits such as pleasure and trust in the ability to co-create value for themselves. In both situations the customer seem to derive benefits. However, the relationship between co-creation activities and its consequences needs further empirical development as only few studies have studied this relationship (Grissemann & Stokburger-Sauer, 2012; Vega-Vazquez et al., 2013). Correspondingly, the following hypothesis is established:

H7. The greater the level of customer co-creation activities, the greater the level of customer perceived benefits.

Methodology

Context and design

In order to test the proposed model and its respective hypotheses, a quantitative and cross-sectional survey was carried out. A hairdresser/barber service and mobile and Internet telecommunications services were chosen as suitable contexts based on the criteria that would be easier for respondents to respond to in terms of a specific service, especially one that everyone would use and know. The respondents were asked to recall their experiences with the chosen service with the objective of capturing the responses of consumers to services in terms of their value co-creation actions with the service company. Although the use of self-reports might lead to the existence of common method bias, it was considered to be the most adequate method of gathering data in this study as respondents are the only ones that really know their co-creation experience with companies and others.

Sample and data

We defined the population for this study as service consumers, aged 18 or over, and living in Portugal. The sample was a convenience sample, since the questionnaire was sent out through the researchers' university database, which includes students and nonstudents. Since the kind of services to be chosen were services that everyone would use, the convenience sample seemed appropriate. The respondents received

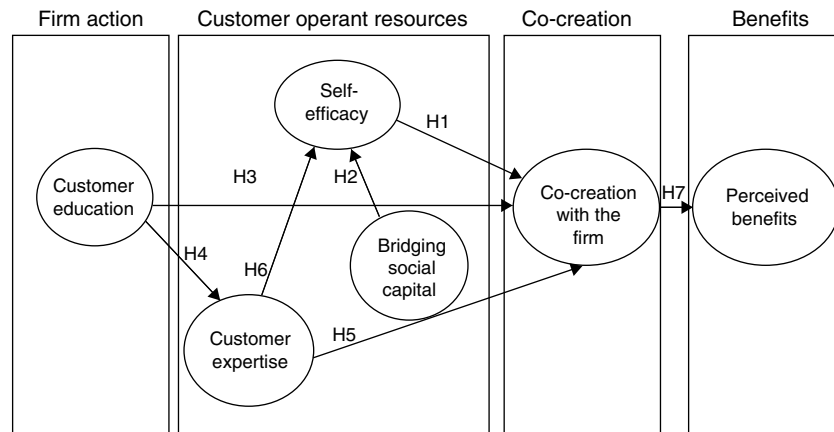


Fig. 1 – Sets out the proposed model and hypotheses.

an email with a link to a web-based survey from the public relations department on behalf of the researchers. The link to the web-based survey was also spread through other online networks. Although online surveys have many disadvantages (Duffy, Smith, Terhanian, & Bremer, 2005), one of them being the possibility of obtaining biased samples, Evans and Mathur (2005) mention that that the differential between offline and online populations is quickly closing as access to internet is quickly changing. Furthermore, Yun and Trumbo (2000) found in their study that there were no significant influences of survey mode in their substantive analysis.

The final sample featured 362 respondents, which was sufficient for the analysis planned (MacKenzie, Podsakoff, & Jarvis, 2005). 65% of the sample are female and 35% male; 37% are between 18 and 25 years of age, 24% between 26 and 35, 23% between 36 and 45, 10% between 46 and 55, and 8% over 55. 85% of sample respondents had graduated from university, while 15% were high school graduates.

Instrument and variables

In order to operationalise the constructs, we made recourse to pre-validated scales and applied the respective adaptations whenever deemed necessary (see Appendix 1). The scale proposed by Bell and Eisingerich (2007) was adopted for the measurement of the customer education construct. In terms of the customer expertise construct, Ojasalo (2001) and Bell and Eisingerich (2007) scale were adopted while turning to the scale set out by Nunes, Schwarzer, and Jerusalem (1999) for the measurement of the self-efficacy construct. In the case of the bridging social capital construct, the Williams (2006) scale was adopted. The Yi and Gong (2012) scale was used to measure the co-creation construct. This scale incorporates how actions of co-creation involve participative actions (information seeking, information sharing, responsible behaviour, and personal interaction) and customer citizenship (feedback, advocacy, helping, and tolerance) and is formative in its nature.

Since the scale of Yi and Gong (2012) is a third higher order factor, and thus very complex to apply when the objective is to test the relationships of this construct with other constructs, we adapted the scale to a second higher order construct where each first order dimension is measured by only one

indicator that tried to capture the essence of the dimension, namely, information seeking, information sharing, responsible behaviour and personal interaction to measure customer participation behaviour, and feedback, advocacy, helping and tolerance to measure customer citizenship behaviour. Finally the scale of Chan, Kin, Yim, and Lam (2010) was used to measure the perceived benefits. All variables were measured according to seven-points Likert type scales.

The first questionnaire version was submitted to pre-testing by twenty persons from different age groups, professions, and academic qualifications. This process resulted in the alteration of the initial content of some questions in terms of their written structure to make them more easily understandable. After these alterations were made, the questionnaire was placed online.

Data modelling

The data was processed by recourse to partial-least-squares-based Structural Equations Modelling (SEM) and SmartPLS software. PLS techniques furthermore report the advantage of dealing with formative and reflective constructs (MacKenzie et al., 2005) as is the case in this study.

Results

Since the model involves the study of co-creation as a second order construct, a previous step was carried out in order to transform the second order co-creation construct in a first order construct. The procedure was carried according to the two step approach suggested by Wright, Campbell, Thatcher, and Roberts (2012). The procedure returned adequate values of the measurement model validity either for the reflective and the formative construct. After, the normal procedure recommended by Chin (1998a,1998b) and Hair, Ringle, and Sarstedt (2011) was carried out.

According to the recommendations set out by Chin (1998a,1998b) and Hair et al. (2011), the proposed conceptual model incorporates two different analytical phases. Firstly, we analysed the measurement model in order to verify whether the indicators for each construct were valid and

Table 1 – Measurement model for reflective indicators.

Indicators	Measurement model (loadings)	Indicators	Measurement model (loadings)
Self-efficacy 1	0.770	Bridging social capital 7	0.838
Self-efficacy 2	0.834	Bridging social capital 8	0.736
Self-efficacy 3	0.893	Bridging social capital 9	0.833
Self-efficacy 4	0.897	Customer expertise 1	0.846
Self-efficacy 5	0.793	Customer expertise 2	0.833
Customer education 1	0.769	Customer expertise 3	0.849
Customer education 2	0.887	Customer expertise 4	0.773
Customer education 3	0.915	Customer expertise 5	0.871
Customer education 4	0.844	Customer expertise 6	0.803
Bridging social capital1	0.813	Perceived benefits 1	0.863
Bridging social capital10	0.748	Perceived benefits 2	0.885
Bridging social capital 2	0.844	Perceived benefits 3	0.857
Bridging social capital 3	0.780	Perceived benefits 4	0.884
Bridging social capital 4	0.850	Perceived benefits 5	0.795
Bridging social capital 5	0.828	Perceived benefits 6	0.756
Bridging social capital 6	0.886		

robust for measuring the respective analytical constructs. This involves calculating the composite reliability of each indicator's loadings, the average variance extracted (AVE) and the discriminant validity of the reflective constructs, in this case the constructs for customer education, customer expertise, self-efficacy, bridging social capital and perceived benefits. For the co-creation construct, since it is analysed as a formative construct, we calculate the weight of each construct indicator and their respective statistical significance in conjunction with ascertaining whether or not the results display multicollinearity, as also recommended by [Chin \(1998a,1998b\)](#) and [Hair et al. \(2011\)](#).

[Table 1](#) presents the reflective constructs (customer education, customer expertise, self-efficacy, bridging social capital and perceived benefits) loadings and [Table 2](#) the weights of the co-creation construct alongside the respective level of standard deviation and statistical significance obtained through the Bootstrapping technique with 5000 samples based on the 361 individuals.

As may be observed from [Table 2](#), all the reflective construct loadings return results in excess of 0.7 and hence in keeping with the recommendations from [Hair, Anderson, Tatham, and Black \(1998\)](#). As regards the co-creation construct, we found that all the weights attain significance enabling us to continue with the analysis.

In continuing with our analysis of the measurement model's validity, [Table 3](#) reports the composite reliability and the average variance extracted (AVE) for the reflective constructs.

As [Table 3](#) shows, all the reflective constructs return composite reliability results above the 0.7 minimum recommended by [Bagozzi and Yi \(1988\)](#), as well as AVE results equal to or better than 0.5, the minimum value recommended by [Bagozzi and Yi \(1988\)](#).

[Table 4](#) furthermore sets out how the reflective constructs attain discriminant validity as all constructs return average variance extracted results higher than the squared correlation between the constructs (Squared correlation with any other construct) as recommended by [Fornell and Laker \(1981\)](#). This validity test shows that common method bias is not a

problem in accordance to what is suggested by [Conway and Lance \(2010\)](#). We furthermore find that no construct reports loadings greater than those returned by the construct itself (table not included) ([Chin, 1998b](#)).

To finalise measurement model validity, we proceeded by analysing the multicollinearity of the indicators for the co-creation construct (participation behaviour and citizenship behaviour) and thereby verifying that they all report values equal to or lower than 1, and hence within the recommendations set out by [Hair, Sarstedt, Ringle, and Mena \(2012\)](#).

Having tested model validity, we then analysed the model's structure involving analysis of the model's (R^2) explicative capacity and the statistical significance of the diverse structural coefficients ([Hair et al., 1998](#)).

We may correspondingly observe from [Fig. 2](#) how the model explains 50.1% of the variance in the co-creation construct and how 26% of the customer expertise construct variance is explained by its preceding construct (customer education) in addition to how 34% of variance in the self-efficacy construct is attributable to its precedents (customer expertise and bridging social capital). We also verify that 33% of the variance in perceived benefits is explained by co-creation activities. According to [Hair et al. \(1998\)](#), there are no set reference values for the explained variance percentages as such depend on the research context. [Table 5](#) details the statistical significance of the diverse structural coefficients after having carried out validation by applying the Bootstrapping technique with 5000 samples provided by the 361 individuals.

As the results in [Table 5](#) demonstrate, all the coefficient paths are significant to the level of 0.05, given the t values are above 1.96. Furthermore, we do also verify that all path coefficients are robust as they all are above 0.2, the minimum value recommended by [Chin \(1998b\)](#). Hence, we calculated the total effects with the results correspondingly set out in [Table 6](#).

Through analysis of the total effects ([Table 6](#)), we may conclude that operant resources, in the form of self-efficacy and customer expertise do influence customer co-creation activities (0.30 and 0.34 respectively), thus supporting [H1](#) and [H5](#). On what concerns the relationship between self-efficacy and the other customer resources, customer expertise and bridging

Table 2 – Measurement model for formative indicators.

Indicators	Measurement model (weights)	T statistics	Significance
Co-creation 1 – customer participation behaviour	0.253	2.797	0.000
Co-creation 2 – customer citizenship behaviour	0.836	12.371	0.000

Table 3 – Composite reliability and AVE.

Constructs	Composite reliability	Cronbachs alpha	AVE
Customer education	0.916	0.876	0.732
Customer expertise	0.930	0.909	0.688
Self-efficacy	0.922	0.894	0.704
Bridging social capital	0.952	0.944	0.667
Perceived benefits	0.935	0.917	0.708

Table 4 – Discriminant validity.

	Customer education	Customer expertise	Self-efficacy	Social capital	Perceived benefits
Customer education	0.732				
Customer expertise	0.255	0.688			
Self-efficacy	0.085	0.188	0.704		
Bridging social capital	0.063	0.092	0.246	0.667	
Perceived benefits	0.476	0.283	0.098	0.099	0.708

Values in bold are the squared correlation between the constructs.

Table 5 – Path coefficients and statistical significance.

Paths	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	Standard error (STERR)	T statistics (O/STERR)
Customer education -> Customer expertise	0.505	0.506	0.051	0.051	9.908*
Customer education -> co-creation	0.362	0.364	0.047	0.047	7.657*
Customer expertise -> Self-efficacy	0.312	0.3105	0.052	0.052	6.063*
Customer expertise -> co-creation	0.247	0.248	0.068	0.068	3.620*
Self-Efficacy -> co-creation	0.301	0.298	0.064	0.064	4.705*
Bridging Social Capital -> Self-Efficacy	0.404	0.408	0.046	0.046	8.883*
Co-creation -> benefits	0.576	0.578	0.048	0.048	12.098*

* Significant at 0.05 level as T value > 1.96.

social capital, we verify that bridging social capital is capable of influencing the customer perception of self-efficacy by 0.4, thus providing support to H2 and that customer expertise is also capable of influencing the perception of self-efficacy

on 0.31, thus providing support to H6. It is also important to highlight the strong influence of customer education, whether directly impacting on co-creation (0.53) or indirectly shaping customer expertise (0.50), thus supporting H3 and H4. Finally,

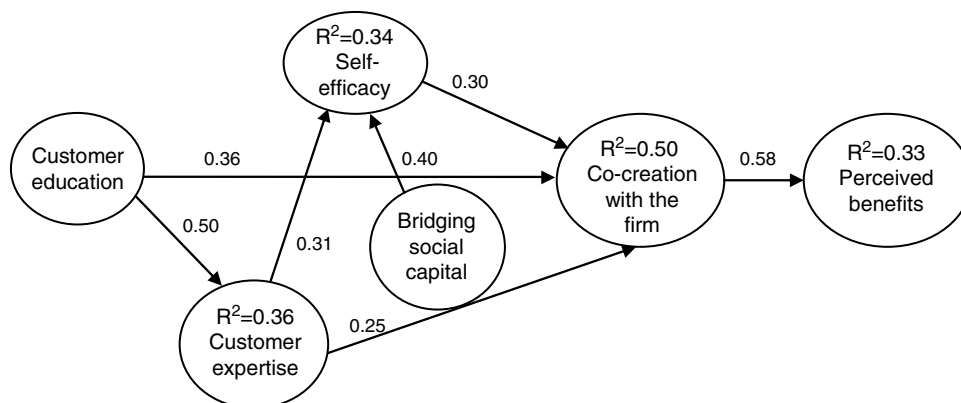


Fig. 2 – Displays this structural model.

Table 6 – Total effects.

Paths	Original sample (O)	T statistics (O/STERR)
Customer education -> customer expertise	0.505	9.947*
Customer education -> self-efficacy	0.158	5.295*
Customer education -> benefits	0.307	6.345*
Customer education -> co-creation	0.534	11.488*
Customer expertise -> self-efficacy	0.312	6.220*
Customer expertise -> benefits	0.196	4.342*
Customer expertise -> co-creation	0.341	5.504*
Self-efficacy -> benefits	0.174	4.842*
Self-efficacy -> co-creation	0.301	4.660*
Bridging social capital -> self-efficacy	0.404	8.708*
Bridging social capital -> benefits	0.070	3.637*
Bridging social capital -> co-creation	0.122	3.564*
Co-creation -> benefits	0.576	12.071*

* Significant at 0.05 level as T value > 1.96.

it is possible to establish a high direct impact of co-creation on perceived benefits (0.58) as expected through H7.

Discussion of results and implications

According to [Gummesson and Mele \(2010\)](#), the level of co-creation undertaken by customers depends on the extent to which their operant resources are integrated. The results of this study in fact demonstrate how individual resources, formalised in terms of self-efficacy, social capital and customer expertise, do contribute to explaining the variance in the co-creation activities engaged in by customers as well as how from these co-creation activities customer do perceived higher levels of benefits. We verified that [Hypotheses 1 and 5](#), which establish a direct influence between the perception of self-efficacy and customer expertise on co-creation, respectively, are confirmed. We also report that the influence of bridging social capital construct on the perception of self-efficacy is significant and thus proving a relevant indirect influence on co-creation as theoretically proposed by [Nahapiet and Ghoshal \(1998\)](#), [Bourdieu and Wacquant \(1992\)](#), [Coleman \(1988\)](#), [Lin \(1999\)](#), [Tsai and Ghoshal \(1998\)](#) and [Chiu et al. \(2006\)](#).

Furthermore, we also verified that these individual resources receive a boost when companies provide their customers with education and training and thereby confirming [Hypotheses 3 and 4](#) that, respectively, propose there is a direct relationship between customer education practices and co-creation activities and also with customer expertise. As proposed by [Payne et al. \(2008\)](#), [Nenonen and Storbacka \(2010\)](#), companies play an important role in facilitating the integration of customer held resources and should correspondingly establish processes that aid this facilitation role and thereby turn themselves genuine facilitators in the creation of value ([Grönroos, 2008](#); [Grönroos & Voima, 2013](#); [Storbacka et al., 2012](#)). Companies should hence not limit their expectations to making value proposals but should actively assist customer based value creation ([Grönroos & Voima, 2013](#)). In fact, this study advocates that company customer education may significantly raise customer expertise (0.505) and, in turn, this goes onto influence the perception of self-efficacy to a considerable extent (0.313). As [Burton \(2002\)](#) and [Eisingerich and](#)

[Bell \(2006\)](#) state, through educating their customers, companies are able to raise customer capacities and abilities in co-producing a service and hence also in co-creating. Another important relationship that found support in this study is the relationship between co-creation activities with the company and the perceived benefits by the customer. This relationship is in fact the stronger path found in this study, thus supporting the idea proposed by [Nuttavuthisit \(2010\)](#) that co-creation activities will bring benefits to the customer.

Based on these results firms need to be aware that one of the factors that can enhance customer co-creation activities with the firm is the perception customers have about their skills and capabilities. In this sense, companies should focus on providing resources that can enhance customers' resources like does Nike through the Nike+ (NikePlus) platform ([Ramawamy, 2008](#)) where customers gain new resources by gaining information on the best routes to exercise, how to enhance their performance and avoid injuries. Furthermore, this perception of self-efficacy is augmented by bridging social capital, the social capital that goes beyond family and friends, and that can bring access to new information. Therefore, firms must design strategies to improve their customers bridging social capital, by for instance providing possible connections between customers or even between customers and experts, through for instance on-line forums. Also, firms must realise that their effort to providing the customer with information about the pros and cons as well as the service works can enhance the customer knowledge on how to deal with the service rendering (customer expertise) and consequently enhance his perceptions of self-efficacy and ultimately his co-creation level. Finally, firms must be conscious that all the efforts and contribution in rising the customer level of co-creation will certainly bring benefits to the firm as customer do perceived higher levels of benefits, such as higher quality services, personalised services, less service failures, more pleasant interactions as well as special treatment, when co-creating with the company.

Conclusions

The objectives of this study centred on understanding the influences of customer operant resources, operationalised

through customer perceptions of their self-efficacy, their bridging social capital and the respective level of customer expertise, on their co-creation activities with companies. While the operant resources of a customer extend beyond these three concepts, their operational application did enable the verification of how these positively influence customer co-creation of value activities. This study also enabled us to ascertain that these resources may be enhanced and leveraged through companies educating their customers and that this process of conveying information and similar such acts in practice serves as one of the factors that best explains variations in co-creation whether directly or indirectly through increasing customer capacities to deal with processes inherent to the service (customer expertise). Therefore, we are also in a position to maintain that companies should seek to foster value creation processes among their customers whether at the point in time of service provision or through the interactions ongoing with customers, for example, through recourse to the Internet, and always strive to best understand just which inhibitions and motivations are experienced by customers and the ways in which they act in order to be best positioned to supply the education necessary to driving the potential of their resources.

This is even more important when we verified the great impact co-creation activities have on customers perceived benefits as for each unit increase in co-creation we can expect a rise of 0.58 in perceived benefits. Thus, companies should prioritise accompanying and monitoring customer processes in order to prepare their own processes and service provision mechanisms able to support the co-creation of value. It would seem that customers with greater resource levels are able to co-create more with companies. However, to attain this, companies need to leverage these resources through educating their customers about their services.

This study contributes to the S-D Logic approach by proposing a way to operationalise the customer operant resources through the perception of self-efficacy and by demonstrating how this construct is related with co-creation. Also, this study supports the notion that if firms work to enhance their customers operant resources they will be able to co-create more with the company and perceive higher levels of benefits that ultimately will contribute to enhance the firm resources.

Limitations and future lines of research

The process of operationalising operant resources through the constructs of self-efficacy, social capital and customer expertise may have restricted the scope of the definition of the operant resources themselves and hence future research should take into account possibly broadening the scope of the operational concept, for example, through the inclusion of social capital as not only bridging social capital but also bonding social capital.

One other limitation to this study stems from the fact that it did not include other constructs and potentially explanatory variables to co-creation activities, such as, and for example, the motivations for customer involvement or otherwise in the co-creation related activities as well as the relationship ongoing with the company. Hence, future research might complement this facet through approaching issues related to

motivation and the trust and commitment a customer might hold shaping his willingness to experiment and engage with the company.

Also, it can be mentioned that the study is based in only two types of services, hairdresser/barber service or a mobile or Internet telecommunications service thus limiting the results extrapolation. In this sense it would be advisable to explore other type of services in future researches.

Finally, we should mention that the means of sample selection (convenience), while incorporating persons from all age ranges, clearly do not represent the global population, thus favouring respondents with higher-than-average educational levels and thereby under-representing those with low levels of educational attainment. In this sense, there might be the possibility that consumers with different educational levels might present different levels of self-efficacy, which in turn might differently influence consumer co-creation levels. In addition, due to the channel used to gather data (Internet), the sample is under-represented regarding what concerns people aged over 55 years old. While more difficult to survey, this consumer group certainly makes up a large percentage of service company consumers. However, in this study they might not representing such a high number of Internet or mobile phones service consumers. Nevertheless, it will be important to consider the adoption of new types of samples or other means of data collection in future research projects.

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Appendix 1.

Co-creation

Participation behaviour

cc1 – I search for information on this service from the company, either online or offline

cc2 – During service provision or whenever entering into contact, I provide the information appropriate and necessary to ensuring good service provision

cc3 – During service provision or whenever entering into contact with the company, I carry out that requested of me

cc4 – During service provision or whenever entering into contact with the company, I have an agreeable attitude towards company members of staff

Citizenship behaviour

cc5 – I give the company my opinion and ideas about the service, either online or offline

cc6 – I give advice about the service to other customers

cc7 – I recommend the company to other consumers

cc8 – I have a certain tolerance towards possible company service failures

Self-efficacy

se1 – If I try enough, I am always able to resolve difficult problems

se2 – It is easy for me to put my intentions into practice and attain my objectives

se3 – I am confident that I can deal efficiently with unexpected events

se4 – When I am confronted by a problem, I am generally able to find diverse and different solutions

se5 – I remain calm even when facing difficulties because I can trust in my capacities to deal with situations

Bridging social capital

bsc1 – Interacting with other persons either online or offline makes me interested in things taking place beyond my own city/town

bsc2 – Interacting with other persons either online or offline makes me want to try new things

bsc3 – Interacting with other persons either online or offline triggers interest in what other people think

bsc4 – Speaking with other persons either online or offline makes me curious about other parts of the world

bsc5 – Interacting with other persons either online or offline makes me feel part of a broader community

bsc6 – Interacting with other persons either online or offline makes me feel linked to a more global world vision

bsc7 – Interacting with other persons either online or offline reminds me just how many people are connected up worldwide

bsc8 – I am prepared to spend time on supporting community activities whether held online or offline

bsc9 – Interacting with other persons, whether online or offline, provides me with the opportunity to speak to new persons

bsc10 – Whether online or offline, I am always meeting new people

Customer education

ce1 – This company keeps me informed about new service features

ce2 – The company clearly explains to me the more complicated issues surrounding the service

ce3 – The company supplies me with all the information I need

ce4 – The company clarifies me about all the pros and cons to the service

Customer expertise

ce1 – I understand well all the different aspects to the service provision process

ce2 – I have a good level of knowledge on service operation

ce3 – I understand the benefits of this service

ce4 – I understand the limitations of this service

ce5 – I feel confident about the means of applying this service

ce6 – I know what is expected of me in service utilisation

Perceived benefits

Benef1 – I receive higher quality services

Benef2 – I receive more customised services

Benef3 – I obtain less service failure

Benef4 – I obtain an improved relationship with the service provider

Benef5 – I obtain a more pleasant interaction with employees

Benef6 – I obtain a special treatment from the company

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