

Students' loyalty in higher education: the roles of affective commitment, service co-creation and engagement

Lealtad de los estudiantes en educación superior: los roles del compromiso afectivo, la co-creación del servicio y el engagement

Loyauté des étudiants dans l'enseignement supérieur: les rôles de l'engagement affectif, la co-cr  ation du service et l'engagement

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Abstract

Aspects related to the emotional dimension begin to be considered in order to generate loyalty in the provision of educational services. This contributes to the establishment of a dynamic long-term relationship with the organization. Therefore, this study sought to analyze the impact of affective commitment to the university, participation in service co-creation and customer engagement on the loyalty of graduate students. To examine this an empirical, explanatory and transversal research was conducted, and personal surveys were applied to 484 graduate students in Mexico. The results show that loyalty of postgraduate students to the university is explained by both affective commitment and participation in co-creating the service. In addition, there is an indirect effect between affective commitment and loyalty through participation in co-creation; however, in this context, the effect of engagement on loyalty could not be confirmed.

Keywords: Service co-creation, Loyalty, Affective commitment, Engagement

Resumen

Los aspectos vinculados a la dimensi  n emocional empiezan a ser considerados para generar lealtad en la provisi  n de servicios educativos, ya que esto contribuye al establecimiento de una relaci  n din  mica de largo plazo con la organizaci  n. Por ello, este estudio busc   analizar el impacto del compromiso afectivo a la universidad, la participaci  n en la co-creaci  n del servicio y el *engagement* del cliente en la lealtad de los estudiantes de posgrado. Para com-

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probarlo se desarrolló una investigación empírica, explicativa y transversal; se aplicó una encuesta personal a 484 estudiantes de posgrado en México. Los resultados evidencian que, la lealtad de los estudiantes de posgrado a la universidad es explicada directamente tanto por el compromiso afectivo como por la participación en la co-creación del servicio. Además, existe un efecto indirecto entre el compromiso afectivo y la lealtad a través de la participación en la co-creación, no obstante, para este contexto, no pudo comprobarse el efecto del *engagement* sobre la lealtad.

Palabras clave: Co-creación del servicio, Lealtad, Compromiso afectivo, *Engagement*.

Résumé

Les aspects liés à la dimension émotionnelle commentent à être considérés pour générer la loyauté dans la prestation de services éducatifs, étant donné que cela contribue à la mise en place d'une relation dynamique à long terme avec l'organisation. C'est pourquoi, cette étude a voulu analyser l'incidence de l'engagement affectif envers l'université, la participation de la co-crédation du service et l'engagement du client dans la loyauté des étudiants de troisième cycle. Pour pouvoir le constater, nous avons développé une recherche empirique, explicative et transversale. Une enquête personnelle a été réalisée auprès de 484 étudiants de troisième cycle au Mexique. Les résultats mettent en évidence que la loyauté des étudiants de troisième cycle envers l'université est expliqué directement aussi bien par l'engagement affectif comme par la participation dans la co-crédation du service. De plus, il existe un effet indirecte entre l'engagement affectif et la loyauté par le biais de la participation dans la co-crédation. Néanmoins, ce contexte n'a pas pu vérifier l'effet de l'engagement sur la loyauté.

Mots clés: Création conjointe du service, Loyauté, Engagement affectif, *Engagement*.

1. Introduction

Facing an increase in both supply and demand for postgraduate and continuous education, many universities are making efforts to improve their competitive position in the education market. To achieve this, they focus their strategies on aspects which they consider to be value-adding differentiators such as academic quality, reputation, improvement in ranking and increasing the brand's value (Hazelkorn, 2013). However, other aspects related to the emotional dimension are beginning to be considered relevant to generate loyalty to a university regarding the provision of educational services, since this contributes to the establishment of a dynamic long-term relationship with the organization. Recent re-

search emphasizes the need to deepen the knowledge about the effect of poorly studied variables of the market (Kumar, 2015) and educational services (Cavazos and Encinas, 2016, Ribes and Peralt, 2016), such as affective commitment, service co-creation, engagement (Maskell and Collins, 2017) and the loyalty of university students. Therefore, this research aims to analyze the impact of affective commitment to the university, participation in the co-creation of the service and customer engagement to the loyalty of postgraduate students.

2. Theoretical Framework

2.1 Affective Commitment and Participation in the co-creation of the service

Organizational commitment is a product of individual-organization transactions and is linked to the deployment of positive attitudes that derive from the person-organization psychological relationship (Allen and Meyer, 1996). According to the component model, there are three types of commitment: normative, affective and continuity; which are present with different intensity in each person linked to an organization (Meyer and Allen, 1991).

The normative commitment represents the loyalty derived from a sense of obligation towards the company; the continuity commitment is based on a perceived need to remain in it (Panaccio and Vandenberghe, 2012), and the affective commitment refers to emotional attachment related to participation and identification with the organization (Carmeli and Freund, 2009).

Recently, research on this topic began to focus on how affective engagement affects different constructs that impact consumers (Liu and Mattila, 2015). Emotional engagement represents the emotional bond of an individual with an organization, valuing their involvement or membership with the firm (Allen and Meyer, 1990b). In this commitment, the person perceives that their needs - essentially the psychological ones - are satisfied, which stimulates the emotional attachment and the social identification with the organi-

zation (Meyer and Allen 1984, Rayton 2006, Chiang, Nuñez, Martín and Salazar, 2010; Lam and Liu, 2014). Therefore, when the affective commitment works, voluntary continuity is fostered in the relationship and participation with the organization (Anvari and Seliman, 2010).

Commonly, the affective commitment is studied within work environments. However, it has also been applied in the understanding of consumers (Evanschitzky, Brock, and Blut, 2011), analyzing its effect on aspects such as trust (Morgan and Hunt 1994) (Harrison-Walker, 2001) and even loyalty (Evanschitzky *et al.*, 2006; Mattila, 2004); as an opportunity to analyze their relationship with other variables, which leads to new possible sources of competitive advantage for an organization (Omar and Urteaga, 2008).

Some researchers consider that co-creation of value conforms to two dimensions, participation and consumer citizenship (Bove, Pervan, Beatty and Shiu, 2009). Customer participation in services is understood as a required, explicit, expected and necessary behavior for the successful production and delivery of the service (Groth, 2005). Therefore, customer participation and involvement are indispensable to achieve the co-creation of the service, becoming a critical organizational issue (Mustak, Jaakkola, Halinen, and Kaartemo, 2016). Clients with greater affective commitment to the organization are more actively involved in co-creating value-for-service behaviors, even in those offered by higher education institutions (Lengnick-Hall, Claycomb and Inks, 2000; Yi and Gong, 2013), so the following hypothesis is proposed:

H1: The affective commitment has a positive impact directly on the participation in the co-creation of the service.

2.2. Affective Commitment and Customer Engagement

The affective commitment has been considered as a substantive force of the identification and the involvement of an individual with a specific organization (Riketta, 2002). On the other hand, engagement has been defined as an individual's positive men-

tal state and achievement characterized by their vigor, dedication and concentration in the tasks to be performed (Schaufeli, Salanova, González-Roma and Bakker, 2002; Van Doorn, Lemon, Mittal, Nass, Pirner, Verhoef, 2010).

The concept of customer-focused engagement emerges from the new theories of marketing regarding services, which emphasize its role and experiences in value creation (Prahalad and Ramaswamy, 2004). In the application of such construct to educational management, students are expected to be actively involved in the services offered by the institution (Blasco, 2014), becoming institutional satisfied allies, and thus improving their persistence, learning and performance (Bryson, 2016). Others suggest that engagement on students involves taking a more active role in assessing, assuring, and improving the quality of the educational experience (Crawford and Derricott, 2017). Given that the affective commitment implies a positive attitudinal link with the university, it will be expected to have a direct effect on student engagement with the institution; therefore, the following hypothesis is proposed:

H2: The affective commitment affects positive and directly the engagement of post-graduate students with the university.

2.3. Commitment and loyalty

Commitment demonstrates the client's desire to maintain a relationship with the organization, thereby giving them a greater margin of confidence to respond to the actions of the competition (Suárez, Vázquez and Díaz, 2007). From it emerges a relational stability and a feeling of loyalty, making it unlikely to abandon the relationship and granting it longevity by resolving the problems that arise (Gillian and Bello, 2002).

Loyalty commitment is expected to have a positive effect on loyalty, as loyal consumers will repeat future purchases or acquisitions at the same organization despite the efforts of other organizations to attract them (Zhang, Dixit, and Friedman, 2010). Previous research on the service sector has found that affective engagement affects loyalty (Mattila, 2004, Evanschitzky *et al.*, 2006, Yang, Chem,

and Chien, 2014). In the scope of educational services, the following hypothesis is established:

H3: Affective commitment affects positive and directly the loyalty of graduate students

2.4. Participation in the co-creation of service and loyalty

The co-creation experience entails a personal interaction with the organization (Boswijk, Thijssen and Peelen, 2005) that facilitates value creation through the client's motivation and willingness to engage in the service (Payne, Storbacka, and Frow, 2008). Previous research has confirmed that there is a significant relationship between co-creation and attitudinal loyalty, which has a conative or intentional character toward repeating a purchase (Cossio-silva, Revilla-Camacho, Vega-Vázquez, and Palacios-Florencio, 2016).

Student loyalty has become a strategic aspect for institutions offering higher education; there is a positive relationship between their satisfaction and the performance of an educational institution in a long-term relationship (Helgesen and Nettet, 2007). Loyalty in higher education does not end at the level of studies degree (Landázuri and León, 2013) since the demand of permanent formation by the labor market generates a change of vision that has impacted the strategy of educational institutions. Both the undergraduate and graduate students are potential candidates who'd enroll in other programs (postgraduate, courses, and seminars). This extended view of training requirements operates in broader cycles within the framework of the ongoing training process (Petrella, 2008).

In this regard, a deep bond with students facilitates loyalty, a sense of belonging and pride towards the institution (Landázuri and León, 2012). This loyalty can be achieved by turning them into participants of the educational center's life so they collaborate, feel useful and needed, as well as involved in the different activities and projects in addition to contributing to their own satisfaction by improving the quality of the service provided to them. Some students may simply enjoy participating in the service delivery process; that is to say, they find the fact of participat-

ing as intrinsically attractive (Bitner, Faranda, Hubbert and Zeithaml, 1997), and this can have repercussions on loyalty. Therefore, the following hypothesis is established:

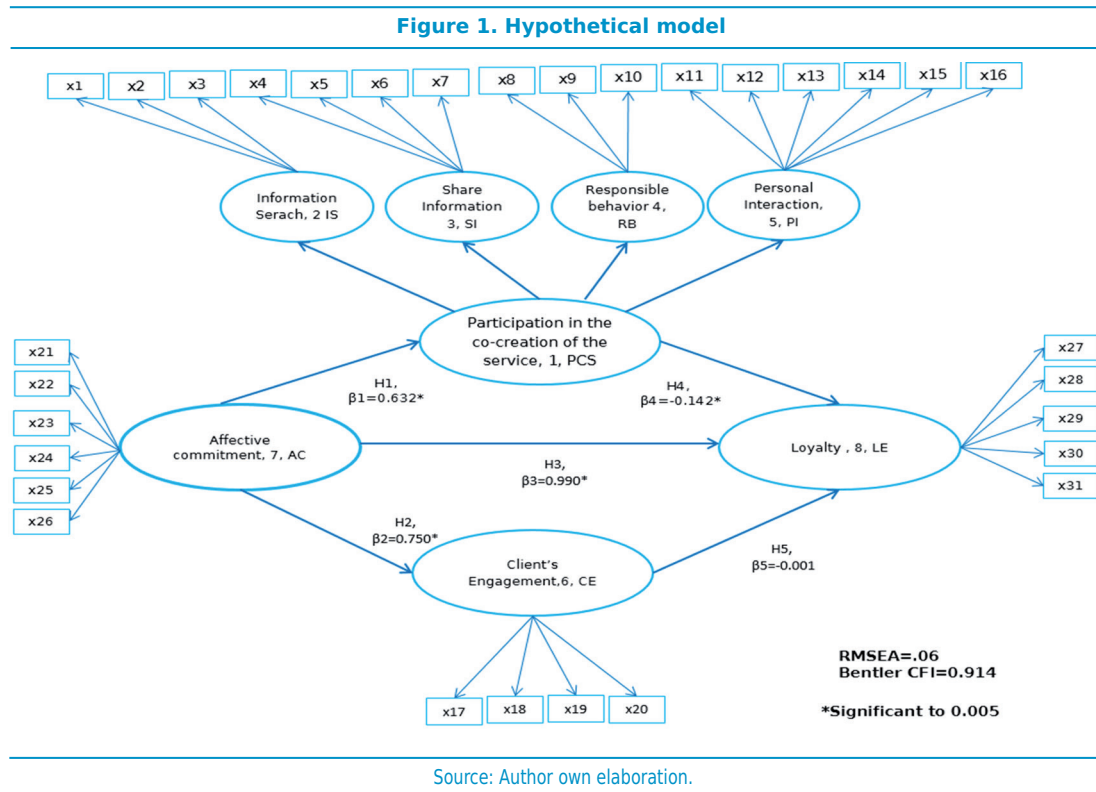
H4: Participation of students in the co-creation of private university services positively affects their loyalty to the institution.

2.5. Customer Engagement and Loyalty

The concept of engagement has shifted from the field of psychology and organizational behavior to marketing (Islam and Rahman, 2016a). In this area, a client voluntarily and disinterestedly develops behaviors such as commitment, loyalty and a positive word-of-mouth that, among other aspects, makes customer engagement essential for the long-term performance of the client's organization (Cambra *et al.*, 2012) and customer relationship management (Vivek, Beatty, Dalela, and Morgan, 2014).

Several theories have been used to explain customer engagement (Islam and Rahman, 2016a). However, there are three theories consolidated in the literature. Firstly, in Marketing Relationships due to the importance of establishing stable and lasting relationships beneficial for both parties (Grönroos, 1994; Morgan and Hunt, 1994; Gummesson, 1987). These relationships add value to the product or service, allowing consumers to become indifferent and loyal. Secondly, it emphasizes the Theory of Reciprocity which states that when the organization invests in the client, the client will feel indebted and will want to correspond to the organization by showing non-transactional behaviors such as loyalty, commitment, or recommendations to their circle of friends (Palmatier, Jarvis, Bechkoff and Kardes, 2009); and the dominant logic of services theory which maintains that products include elements of service in relation to their use value, and the consumer creates the real value for the user (Grönroos, 2011).

Previous research in different industries has found that customer engagement positively impacts their loyalty (Hollebeek, 2011, Gummerus *et al.*, 2012, Islam and Rahman, 2016b, So *et al.*, 2016). But to our knowledge, it has not been investigated if customer engagement positively affects loyalty, so testing



the following hypothesis is proposed:

H5: Engagement of graduate students positive and directly affects university loyalty.

It is possible that there is an indirect relationship between two variables when a third mediates the effect between them (Ruíz, Pardo, and San Martín, 2010). Therefore, considering the structure of the conceptual model, it is necessary to verify if there is an indirect relation between commitment and loyalty, mediated as much by participation in the co-creation of the service as by the engagement of the client. Thus, it is proposed that:

H6a: There is an indirect relationship between affective commitment and loyalty mediated by student participation in the co-creation of services at private universities.

H6b: There is an indirect relationship between affective commitment and loyalty mediated by student engagement.

3. Methodology

3.1 Study design and sample

An empirical, explanatory and transver-

sal investigation was developed (Hernández Fernández and Baptista, 2010). For the collection of the data, a personal survey technique was applied. The unit of analysis was formed by students enrolled in postgraduate degrees, both master's and doctorate, from a private university in Mexico. A non-probabilistic sampling technique was used for convenience, resulting in 484 subjects surveyed.

3.2. Scale

The survey was developed based on different scales (Table 1), among which one corresponded to the latent dependent variable Loyalty (LE) in the Covariance Structure Model, and three assigned as independent latent variables: creation of service (PCS), affective commitment (AC) and customer engagement (CE).

3.3. Hypothetical model

To analyze the influence of predictor variables on the outcome variable, a conceptual model that poses the hypotheses to be examined was developed (Figure 1.)

The model proposed in Figure 1 presents 4 reflective constructs, including participation

Table 1. Constructs and indicators

Constructs and indicators		Constructs and indicators	
Information search ^a		Client's Engagement ^a	
I have requested information about the services offered by the university	X1	My relationship with this university has made me feel appreciated	X17
I have searched for information on the location of university services	X2	I feel I have a personal bond with this university	X18
I have paid attention to the behavior of other students in the correct use of university services	X3	I believe that this university has cared for me as a person	X19
Share Information ^a		I believe that I have established a special relationship with this university	X20
When I use university services, I clearly explain to employees what I need	X4	Affective commitment ^a	
I give appropriate information to university employees when I use their services	X5	I believe my personal values and the values of this university are very similar	X21
I provide the necessary information so that the employees of the university can carry out their work	X6	I am willing to make all my effort to help this university achieve its goals	X22
I answer to university employees all the questions related to their services	X7	I am proud to be a part of this university	X23
Responsible behavior ^a		This university inspires me to give my best in my studies	X24
I perform all the tasks that the university establishes	X8	I really worry about the success of this university	X25
I adequately fulfill all the behaviors expected by the university	X9	This university is the best choice among the available educational alternatives	X26
I fulfill all responsibilities with the university	X10	Loyalty ^a	
Personal interaction ^a		I speak positive about this university to other people	X27
I follow all orders or instructions from university employees	X11	I recommend this university to anyone who asks me for advice	X28
I am friendly towards university employees	X12	I encourage friends and family to study at this university	X29
I'm kind to university employees	X13	This university was my first choice for my studies	X30
I'm polite to university employees	X14	I would consider returning to study at this university in the next few years	X31
I am gracious to university employees	X15		
I do not act rudely toward university employees	X16		

^a 1= totally disagree to 7 = totally agree

Source: Author's own elaboration.

in the co-creation of the service (PCS) as a second-order reflective-reflective order consisting of the constructs: information search (IS), sharing Information (SI), responsible behavior (RB) and personal interaction (PI). For the treatment of the data, the analysis of the multicollinearity between the items was performed in order to estimate the existence of redundant variables (bivariate correlations greater than 0.80, cutoff point suggested by Albashrawi, 2015).

A two-step modeling procedure was used to examine the MEC (Hair, Anderson, Tatham and Black, 1998) of Figure 1. Models were evaluated with respect to convergent and discriminant validity to measure the extent to which the set of indicators exactly represents the construct. The criterion used is related to the size of the load to evaluate the reliability of the indicator with the construct that it intends to measure (Seidel and Back, 2009). In the seven reflective models of measurement,

including those of second order, only those indicators that had a standardized factor load ≥ 0.5 were retained (Johnson and Stevens, 2001). The convergent validity was measured by factor load (cut-off point of 0.5 or more) (Johnson and Stevens, 2001) and reliability index (cut-off point between 0.50 and 0.60) (Cheah, Wan Abdul Manan, and Zabidi-Hussin, 2010; Sridharan, Deng, Kirk and Corbitt, 2010). In a satisfactory discriminant validity, the Average Variance Extracted (AVE) should be greater than the square of the correlation between the pair of constructs (Bhattacharjee and Premkumar, 2004, Wixom and Todd, 2005). In addition, the correlation coefficients between constructs must be less than the corresponding reliability coefficient (Gerbing and Anderson, 1988).

The items used to measure the seven reflective constructs did not present a normal multivariate distribution (Mardia test of bias and kurtosis, p value of bias = 0.000 and p value of kurtosis = 0.000). However, since the scales used correspond to Likert scales of 7 categories, and by making use of the assumption that procedures for interval scales can be applied to the Likert scale with 5 to 7 categories (Garson, 2012), model estimates have been performed using the Spearman correlation matrix shown in Table 2. The analysis of the multicollinearity between the items allowed to note that the bivariate correlations between x_{14} and x_{15} , x_{18} with x_{20} and x_{27} with x_{28} were greater than 0.80, so it was not necessary to eliminate x_{15} , x_{20} and x_{28} .

The fit of the model was determined by the Satorra-Bentler scaled χ^2 test of goodness of fit (a non-significant p -value is desirable), given the conditions of non-normality of the data (Allan, 2010; Bentler, 1993; Randall, Martin, Johnson and Poon, 2012); (Bentler, 1992, Crowley and Fan, 1997, Musil, Jones, and Warner, 1998), as well as the Bentler-Bonett comparative index (CFI). And the square root of the mean square of the approximation error (RMSEA), being less than 0.08 indicates a good fit of the model, Browne and Cudeck, 1993). The most parsimonious model was chosen with the Lagrange multiplier (Bosompra, 2001). The conceptual model in Figure 1 was adjusted using the SEM package through statistical software R 3.0.1.

4. Results

4.1 Characteristics of the subjects of study

The characteristics of the respondents are shown in Table 3 where it is shown that the majority of the respondents (93.0%) attended a master's degree. More than half were women (66.6%) and almost 70% reported having some type of scholarship. In addition, the average age of the sample was 30.05 years of age.

4.2 Structural Equation Modelling of Student Loyalty to the University

Table 4 shows the factor loads and the other estimators. The model shows a good fit with Bentler CFI = 0.91 and RMSEA = 0.06 even though Chi square is significant (p value < 0.05). The measurement models for the 7 latent variables are represented either by the indicators considered which are significant (figure 2 and table 4 in the annex). Therefore, in the proposed model the measurement structure is satisfactory in all latent variables. The criteria of convergent and discriminant validity were met for each subscale (Table 5). Between the AC and LE constructs only the second criterion of discriminant validity is met, which provides sufficient evidence of the validity of the construct.

It was found that the affective commitment (AC) has a positive and significant effect ($\beta_1 = 0.632$) on the participation in the co-creation of the service (PCS), proving hypothesis 1. Also, PCS directly and positively affects loyalty (LE) ($\beta_4 = 0.142$) and hypothesis 4 was verified (figure 2). The results indicate that the mediation of the total effect of AC on LE through PCS (AC, PCS, LE) is significant ($\beta_1 * \beta_4 = .632 * .142 = .090$), boosting the effect of AC on LE with a Positive effect ($\beta_3 = 0.990$), and a significant effect of total LE in 1,080 ($0.990 + 0.090$). The overall effect greater than 1 is valid due to the absence of multicollinearity in the data (Joreskog, 1999), so H6a is checked.

As for the second order dimensionality of the Participation in Service Co-creation (PCS), the model indicates that the strength of the relationship lays between factors of

Table 2. Spearman correlation coefficients

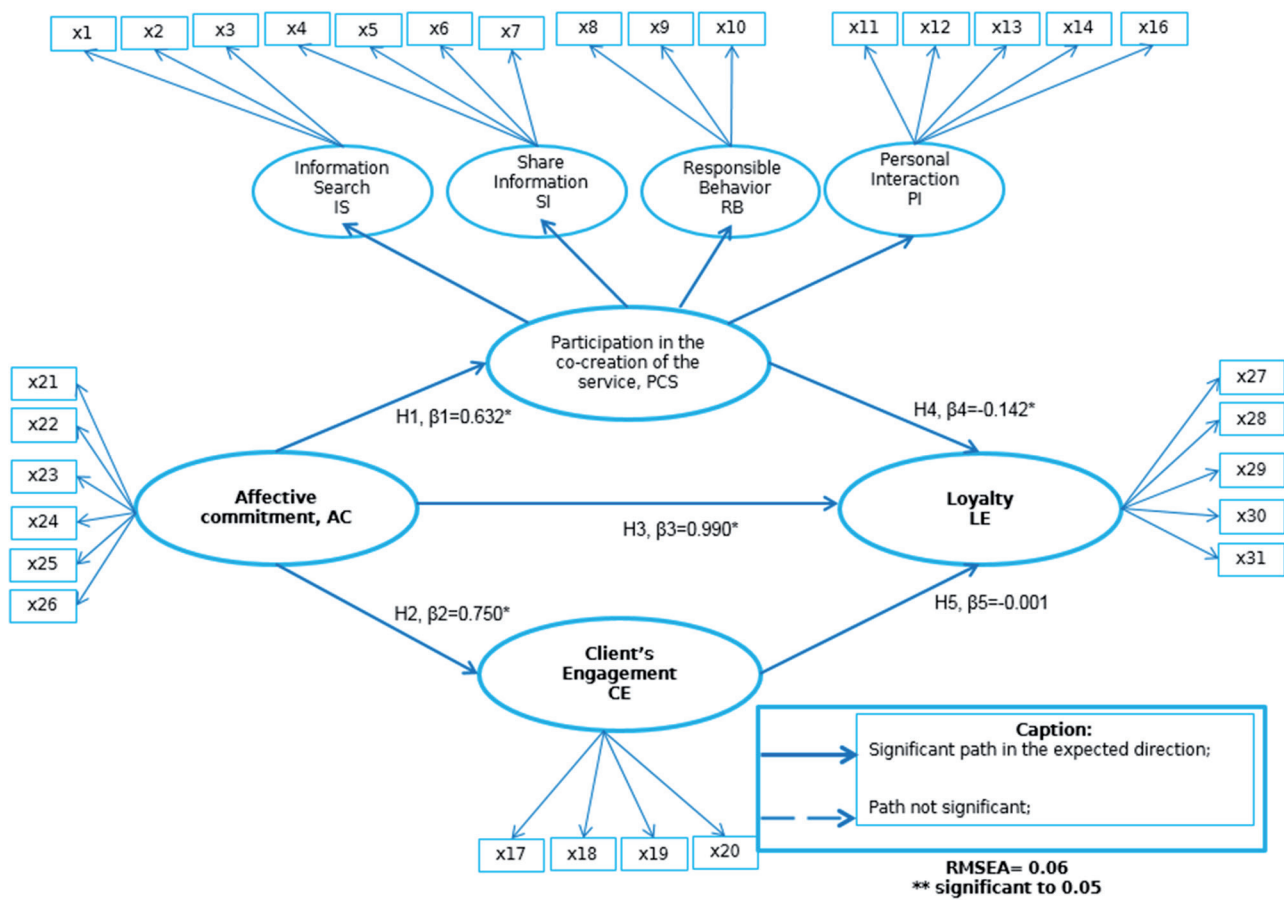
	IS				SI				RB				PI				AC				CE				LE							
	x1	x2	x3	x4	x5	x6	x7	x8	x9	x10	x11	x12	x13	x14	x15	x16	x17	x18	x19	x20	x21	x22	x23	x24	x25	x26	x27	x28	x29	x30	x31	
IS	1																															
	0.7	1																														
	0.4	0.4	1																													
	0.5	0.5	0.34	1																												
	0.4	0.4	0.38	0.7	1																											
	0.4	0.4	0.35	0.6	0.8	1																										
	0.3	0.3	0.27	0.6	0.6	0.7	1																									
RB	0.2	0.2	0.11	0.3	0.3	0.4	0.5	1																								
	0.2	0.2	0.08	0.3	0.4	0.3	0.4	0.6	1																							
	0.2	0.2	0.07	0.3	0.3	0.3	0.4	0.6	0.8	1																						
	0.2	0.1	0.04	0.3	0.3	0.3	0.3	0.4	0.5	0.4	1																					
	0.1	0.1	-0	0.3	0.2	0.2	0.3	0.3	0.4	0.4	0.6	1																				
	0.1	0.1	-0.1	0.3	0.2	0.3	0.3	0.3	0.4	0.4	0.6	0.8	1																			
	0.1	0.1	-0	0.3	0.2	0.2	0.2	0.3	0.4	0.4	0.5	0.7	0.8	1																		
PI	0.1	0.1	-0	0.3	0.2	0.2	0.2	0.3	0.4	0.4	0.6	0.8	1																			
	0.1	0.1	-0	0.3	0.2	0.2	0.2	0.3	0.4	0.4	0.5	0.7	0.8	1																		
	0.1	0.1	-0	0.3	0.2	0.2	0.2	0.3	0.4	0.4	0.6	0.7	0.8	1																		
	0.1	0.1	-0	0.2	0.2	0.2	0.2	0.3	0.4	0.4	0.5	0.6	0.7	0.8	1																	
	0.2	0.2	0.19	0.2	0.2	0.2	0.3	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.4	1															
	0.2	0.2	0.26	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.3	0.7	1														
	0.3	0.3	0.31	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.6	0.8	1													
AC	0.3	0.2	0.29	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.7	0.8	0.8	1												
	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.5	0.5	0.5	0.5	1											
	0.2	0.2	0.08	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.4	0.3	0.3	0.3	0.5	0.4	0.4	0.5	0.7	1										
	0.3	0.2	0.08	0.2	0.2	0.2	0.3	0.3	0.3	0.4	0.3	0.3	0.4	0.3	0.3	0.3	0.5	0.5	0.5	0.5	0.6	0.7	1									
	0.3	0.2	0.11	0.2	0.2	0.2	0.2	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.5	0.5	0.5	0.5	0.6	0.8	1									
	0.2	0.2	0.18	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.5	0.5	0.5	0.5	0.5	0.6	0.7	1								
	0.2	0.3	0.22	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.6	1							
CE	0.2	0.2	0.06	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.5	0.4	0.4	0.4	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	
	0.2	0.2	0.05	0.2	0.2	0.1	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.5	0.4	0.4	0.5	0.5	0.6	0.7	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	
	0.2	0.2	0.18	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	
	0.2	0.3	0.19	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0	0	0.1	0	0.1	0.3	0.4	0.4	0.5	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5	
	0.3	0.3	0.15	0.3	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
LE																																

Source: Author's own elaboration.

Table 3. Main characteristics of the study sample

Characteristic	n	Minimum	Maximum	Mean	D.S.
Age	422	22	69	30.05	6.449
				%	
	n		Masters		PHD
Graduate level	468		93.0		7.1
			Woman		Man
Gender	476		66.6		33.4
			Yes		No
Scholarship	474		69.6		30.4

Source: Author's own elaboration.

Figure 2. Final version of the structural equations model to predict loyalty

Source: Author own elaboration.

Table 4. Standardized estimators of the SEM model with robust, significant standard errors with alpha = 0.001

Construct	Item	Parameter ^t	Model (Estimator) I	Construct	Item	Parameter ^t	Model (Estimator) I
PCS	IS	λ_{11}	0.428		x24	$\lambda_{23,6}$	0.88688792
	SI	λ_{21}	0.591		x25	$\lambda_{24,6}$	0.84263734
	RB	λ_{31}	0.853		x26	$\lambda_{25,6}$	0.77534238
	PI	λ_{41}	0.731			ζ_5	1
IS		$\phi_{1,1}$	0.60041873			δ_{16}	0.41916
	x1	λ_{52}	0.85249316			δ_{17}	0.43265114
	x2	λ_{62}	0.87750534			δ_{18}	0.21558439
	x3	λ_{72}	0.48367889			δ_{19}	0.21342982
		ζ_1	0.81698705			δ_{20}	0.28996231
		δ_1	0.27325542			δ_{21}	0.39884419
		δ_2	0.22998438	CE	x17	$\lambda_{26,7}$	0.80460959
SI		δ_3	0.76605474		x18	$\lambda_{27,7}$	0.86253429
	x4	λ_{83}	0.79156942		x19	$\lambda_{28,7}$	0.89043729
	x5	λ_{93}	0.89983636		x20	$\phi_{2,2}$	0.43746086
	x6	$\lambda_{10,3}$	0.87310897			δ_{22}	0.35260342
	x7	$\lambda_{11,3}$	0.77375399	LE		δ_{23}	0.25603461
		ζ_2	0.65023407			δ_{24}	0.20712144
		δ_4	0.37341786		x27	$\lambda_{31,8}$	0.86374
RB		δ_5	0.19029453		x28	$\lambda_{32,8}$	
		δ_6	0.23768073		x29	$\lambda_{33,8}$	0.86382728
		δ_7	0.40130477		x30	$\lambda_{34,8}$	0.64368733
	x8	$\lambda_{12,4}$	0.7344357		x31	$\lambda_{35,8}$	0.69867576
	x9	$\lambda_{13,4}$	0.88478546			$\phi_{3,3}$	0.17780514
	x10	$\lambda_{14,4}$	0.9042277			δ_{27}	0.25395321
		ζ_3	0.27183177			δ_{28}	
PI		δ_8	0.4606042			δ_{29}	0.25380243
		δ_9	0.21715469			δ_{30}	0.58566662
		δ_{10}	0.18237226			δ_{31}	0.51185219
	x11	$\lambda_{15,5}$	0.64101068			β_1 (H1)	0.632
	x12	$\lambda_{16,5}$	0.85493789			β_2 (H2)	0.750
	x13	$\lambda_{17,5}$	0.92942253			β_3 (H3)	0.990
	x14	$\lambda_{18,5}$	0.89496963			β_4 (H4)	-0.142
AC	x15	$\lambda_{19,5}$	0.62749786			β_5 (H5)	-0.001
	x16	ζ_4	0.46533952	Goodness of Fit Indexes χ^2 independent model ^a χ^2 de Satorra-Bentler ^b Bentler CFI RMSEA ^a Significant to 0.01 ^b Comparative adjustment index			
		δ_{11}	0.58910531				
		δ_{12}	0.26908121				
		δ_{13}	0.13617376				
		δ_{14}	0.19902936				
		δ_{15}	0.60624643				
	x21	$\lambda_{20,6}$	0.7621286				
	x22	$\lambda_{21,6}$	0.75322564				
	x23	$\lambda_{22,6}$	0.88567241				

Source: Author's own elaboration.

Table 5. Criteria of convergent and discriminant validity of the proposed model

Construct	Reliability coefficient	Correlation between factors ij					Reliability coefficient i	Reliability coefficient j	ϕ_{ij}^2	IVE i	IVE j
IS	0.79	PCS	<-->	EC	ϕ_{12}	0.48	0.75	0.93	0.23	0.45	0.73
SI	0.90	PCS	<-->	CA	ϕ_{13}	0.63	0.75	0.92	0.40	0.45	0.67
RB	0.88	PCS	<-->	LE	ϕ_{14}	0.48	0.75	0.90	0.23	0.45	0.6
PI	0.92	EC	<-->	CA	ϕ_{23}	0.75	0.93	0.92	0.56	0.73	0.67
PCS	0.75	EC	<-->	LE	ϕ_{24}	0.67	0.93	0.90	0.45	0.73	0.6
CE	0.93	CA	<-->	LE	ϕ_{34}	0.90	0.92	0.90	0.81	0.67	0.6
AC	0.92										
LE	0.90										

Source: Author's own elaboration.

first order and second order with loads above 0.50, except for Information Search (IS) with load of 0.428; although Responsible Behavior (RB) is the strongest PCS measurement (0.853). It can be said that when considering the weights of the four dimensions, PCS is a predominantly responsible behavior (RB) with other complementary characteristics.

A direct and positive effect of the Affective Commitment (CA) on Customer Engagement ($\beta_2 = 0.750$) was verified, but the relationship of EC with LE was not significant ($\beta_5 = 0.001$) and H5 was rejected; and therefore, it was found that EC did not average the relation between AC and LE, rejecting H6b.

5. Discussion and conclusions

This empirical research evidences that the loyalty of postgraduate students to the university is explained by both affective commitment and participation in the co-creation of the service. Emotional commitment is a powerful emotional force that stimulates ties and identification (Allen and Meyer, 1990a) with the university institution, directly influencing three constructs: participation, student engagement (client) and loyalty. Nonetheless, commitment indirectly affects loyalty when mediated by participation, but not through student engagement.

These results coincide, on one hand, with what has been found in the educational sec-

tor when studying the relationship between the attitudinal link and the active involvement of the student with engagement (Blasco, 2014), through works that validate the relationship between affective commitment and Co-creation of services (Yi and Gong, 2013) and studies on the impact of commitment on loyalty (Castañeda and Luque, 2008).

However, despite previous research in other sectors showing the relationship between customer engagement and loyalty (Palmatier *et al.*, 2009; Van Doorn *et al.*, 2010), the results of this research when applied in the education sector did not show any significance regarding this relationship. One possible explanation may be due to the complexity of the interaction of services in the education sector, since the student, in addition to being the primary consumer, is the co-producer of his education (Duque, 2003), which increases his autonomy in relation to the institution (Nuno, 2003). On the other hand, since the student assumes different roles in the academic field, such as academic, civic or client / service user (Fitzgerald *et al.*, 2016), it is possible that the latter is the least associated with loyalty.

Engagement is relevant to value creation (Prahalad and Ramaswamy, 2004), which applied to the field of marketing of educational services actively involves the participant during service interaction (Gupta *et al.*, 2015). Therefore, it is advisable to develop strategies that strengthen this relationship in the field of educational marketing.

These findings also highlight the importance of including in the postgraduate marketing strategy the construction of a relationship based on the generation of an emotional commitment. Higher education institutions should focus their marketing efforts on gaining the goodwill of students to engage emotionally with the institution and on generating higher active participation oriented towards building a long-term relationship with their graduate students. Among the limitations of the study, it is mentioned that the collected sample was non-probabilistic. Since a hypothesis testing assumption consists of collecting a random sample (Garson, 2012), the results of the tests and their generalization must be interpreted with caution (Taylor-Powell, 1998). Among future studies, the relevance of exploring in greater depth the co-creation of the service applied in the educational field is identified.

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