Determinants of customer experience in e-services: the case of online universities

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Abstract

Purpose – The study analyzes the key drivers of consumer experience in e-services, with the particular goal of defining and quantifying the influence of website quality and university brand assessments on the experience of consumers who are students of a virtual university.

Theoretical framework – To carry out the research we analyzed website quality, brand, and customer experience

Design/methodology/approach – We carried out a statistical analysis using structural equation modeling of web-based questionnaires collected from 306 postgraduate students of a virtual university.

Findings – Our research reveals that the university's brand is the most influential factor. In contrast, the influence exerted by the web environment is lower. Of the three website dimensions, the quality of the system exerts the greatest influence, followed by relationship quality, which is moderated by the role of university staff.

Research, practical, and social implications – We propose that the quality of a virtual classroom (quality of the system, quality of information, and service quality), together with students' individual assessments of the brand, determine the students' experience as consumers of this service. The brand assessment is the most important factor.

Keywords – Student experience, website quality, brand assessment, virtual learning environment, virtual universities

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Revista Brasileira de Gestão de Negócios

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1 Introduction

The intensive use of information and communication technologies (ICT) has revolutionized university education, in terms of both its operations and the strategic orientation that defines its management. For example, new models of the teaching-learning process have redefined the roles of teachers and students, as well as the relationship between them (Elsharnouby, 2015; González-Marcos, Alba-Elías, Navaridas-Nalda, & Ordieres-Meré, 2016; Park, 2019; Pimienta, Barzola, & Zurdo, 2016). Furthermore, ICT have modified the environment in which this relationship develops, favoring the emergence of virtual learning environments and new teaching resources (Cassidy, 2016). Finally, ICT have made it possible for universities to attract a global market of potential consumers and competitors. Accordingly, we can observe notable changes in the strategic and management models developed by universities (Pucciarelli & Kaplan, 2016).

As opposed to the traditional model, where the university had a social and public role as a creator and transmitter of knowledge, favoring the development of the territory, a new vision has emerged (Peters & Besley, 2006). Here the university is an economic agent that seeks financial profitability, is concerned with its image, and competes in a global environment with other higher education institutions (Aleixo, Leal, & Azeiteiro, 2018; Altbach, Reisberg, & Rumbley, 2019). To survive and consolidate their positions, universities increasingly adopt a stakeholder orientation, in which the student, as the consumer of the academic services provided, represents the center of university activity (González-Marcos et al., 2016). This growing orientation has also meant an understanding of student satisfaction is fundamental for university management (Datu & Mateo, 2015). It is the students who enable educational institutions to exist and endure, so their satisfaction is a primary consideration and should reduce their likelihood of leaving or changing universities.

Traditional methods for achieving customer satisfaction relied on marketing strategies; today, the emphasis has shifted toward achieving emotional links with consumers, especially based on their experience. Iglesias, Markovic, and Rialp (2019) highlight important differences between customer satisfaction and experience. Satisfaction is more objective and relates directly to outcomes, whereas experience is more subjective and pertains to both the results obtained and the process that enables those outcomes to be achieved (Shapiro et al., 2017; Srivastava & Koul, 2016). Thus, a customer may be satisfied with the final result but still have suffered an unpleasant experience in the process. Moreover, simple satisfaction does not create links between the customer and the brand. It is only when the customer feels emotionally attached to the brand that loyalty levels increase (Fernandes & Moreira, 2019).

In a university context, the students' experience is a key determinant of the success of the institution (Shapiro et al., 2017). Cerezo, Sánchez-Santillán, Paule-Ruiz, and Núñez (2016) point out that education is a service, where there are strong and long-term interaction processes – through teaching and learning, among others – between the students and the institution. However, in virtual learning environments, this situation is more evident due to the students not only interacting with the teachers and other students, but also with the virtual space and the learning resources as well (Vuopala, Hyvönen, & Järvelä, 2016). Nowadays, a significant part of teaching activity takes place in virtual environments and universities also need to consider how the student's virtual experience is conditioned by this context surrounding the learning process.

Accordingly, we seek to analyze the determinants of a student's experience in an online university environment. We start with the concept of customer experience, which we apply in the context of online university services. A model proposed by Schmitt and Zarantenello (2013) and Shapiro et al. (2017) serves as the foundation for establishing our prediction that the quality of the virtual classroom and brand assessments are primary determinants of online university students' experience. To test our hypotheses, we investigate responses from a sample of students of the one digital university in Spain. The findings confirm the validity of the model, showing that the focal factors have positive effects on university students' experience. We find evidence of the importance of the quality of the website, as well as the name of the university, in the student's experience. This highlights the need for university managers to be aware of the need not only to adapt their service offerings to customer needs but also to consider the importance of the environment in which they are located when determining the customer experience and the degree of satisfaction obtained.

2 Literature Review

The emotional bonds of a customer with a brand or company offer important indicators of business success (Iglesias et al., 2019). As Tukker and Tischner (2017) warn, quality products or services are no longer enough to ensure competitiveness or firm survival. Some studies even question if customer satisfaction leads to loyalty (Atulkar & Kesari, 2017; Leckie, Nyadzayo, & Johnson, 2016) or recommendation intentions (Beyari & Abareshi, 2018).

Such issues are particularly pertinent in complex, rapidly changing environments, such as those that most companies face today. Businesses operate in mature, highly competitive markets, often with almost undifferentiated products and services, such that many companies opt for essentially price-based positions (Andersson, Awuah, Aagerup, & Wictor, 2020). Customers are also more demanding, better informed, and interested in customized products. Thus, a strategic change in the existing paradigm means customers not only want to meet their basic needs but also reach a higher level in their purchasing and consumption processes, defined by emotions and experiences (Jiménez-Zarco, Rospigliosi, Martínez-Ruiz, & Izquierdo-Yusta; 2019).

At the same time, ICT developments have produced new competitive contexts that have opened the door to new environments marked by collaboration, dialogue, and close relationships among different agents. The customer thus has a more direct and active role concerning the brand (Gómez-Suárez, Martínez-Ruiz, & Martínez-Caraballo, 2017). This relationship can be continued over time, thereby increasing the number of interactions and experiences consumers have during their journey (Riivits-Arkonsuo, Kaljund, & Leppiman, 2015). To strengthen its relationship with customers, a company must thus monitor the whole set of experiences they have, as well as identifying and managing the factors that determine them so that it can establish marketing policies to ensure a positive overall customer experience.

2.1 Customer experience: determinants and consequences

Jain, Aagja, and Bagdare (2017) define customer experience as the internal, integral, subjective response or reaction of the customer to any direct or indirect contact with a company or brand. Its psychological nature is evidenced in the works of Chathoth et al. (2014) and Lemon and Verhoef (2016), which indicate that this strictly personal experience prompts the customer's involvement at different levels: sensory, emotional, cognitive, physical, and relational (Garg, Vandana, & Kumar, 2017). Its evaluation depends on a comparison between the customer's expectations and the stimuli that emerge from the interaction with the company and its offering at different moments of contact (Ebrahim, Ghoneim, Irani, & Fan, 2016). Finally, consumer experiences can be direct and indirect, and can also vary in strength and intensity, so certain experiences are stronger or more intense than others (Lemon & Verhoef, 2016). They also differ in valence, so some experiences are more positive and others are more negative.

According to Farias, Aguiar, and Melo, (2014), in consumption contexts, especially of services, the experience depends on the **expectations and the interactions** that the customer establishes with the brand. As a result of that experience, the customer may undergo changes in what he or she thinks, feels, and how he or she acts toward the brand (Kahn, Inman, & Verhoef, 2018). Munoz-Arcentales, Montoya, Chalen, and Velásquez (2018) and Schmitt and Zarantenello (2013) concur that the consumption experience depends on several factors, including not only use and practice but also the habit or custom that a customer develops regarding the product or service. Current use of a brand directly connects the experience with perceptions, feelings, and direct observations stemming from the interaction (Wei, Torres, & Hua, 2016). As a consequence, the relationship is influenced by the touchpoints between the consumer and the company, which involve both the environment in which it takes place (physical or virtual) and the people engaged in the interaction (employees who provide the service) (Zomerdijk & Voss, 2010). As a customer uses a product or service, he or she gains more experience. The second factor, pertaining to habits or customs, refers to the shared past between the customer and the brand, marked by knowledge, feelings, and varying levels of loyalty over time (Lemon & Verhoef, 2016). This factor is determined by the brand's ability to fulfill its promises to the customer, which should increase the degree of commitment it acquires from that customer.

Furthermore, it defines the meaning of the brand for the customer, which creates expectations (Esch et al., 2012). Finally, Blackston and Lebar (2015) point out that a positive or negative experience is determined by the customer's interpretation of all sensory information received during the interaction, as well as the expectations

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that he or she had for the relationship with the brand or company. These perceptions are stored in long-term memory (Carbone & Haeckel, 1994) and thus affect customer behavior over time, with important practical implications for brands, whether they operate in offline or online environments.

Identifying the main effects of experience on consumer behavior has become the focus of interest of academics and professionals. Pine and Gilmore (1998) provide evidence that companies' key competitiveness resides in providing consumers unique experiences and unforgettable memories. Thus, companies strive for consumers to obtain not only positive or satisfactory but also memorable experiences (Iglesias et al., 2019). Experiential marketing recognizes that consumer interest is not restricted to purely functional benefits, but also extends to the consumption of the total experience (Smilansky, 2017). However and Adhikari (2019) provide evidence that the experience can engage the consumers' senses of sight, hearing, touch, and feeling in an unforgettable way.

Ahn and Back (2018) show that a memorable experience generates short-term behavioral change and builds an emotional connection and a profound relationship with the brand, ultimately leading to a rational response to the brand and product purchase. Along the same lines, Tsaur, Chiu, and Wang (2006) find evidence that experience has a positive effect on emotions and, subsequently, on behavioral intention through the mechanism of satisfaction.

Satisfaction is confirmed as one of the first results of experience (Ali, Amin, & Cobanoglu, 2016), and is defined in terms of the pleasure (Wang, 2011) and enjoyment (Sina & Kim, 2019) felt by the customer as a direct consequence of the result obtained. However, in the services sector, the end value provided by a service is determined by the way in which the service is offered; in other words, by how the interaction between the customer and the brand is conducted (Ali et al., 2018). Thus, the inseparability of the production and consumption of digital services conditions the result of the interaction and its capacity to deliver value and, therefore, the customer's experience (Vargo & Lusch, 2014).

2.2 Customer experiences in an online university context

The concept of experience is also consistent with current marketing approaches, such as the service-dominant logic (Vargo & Lusch, 2017) and the notion of perceived value (Yachin, 2018). In these views, the purchase and use of a product offer consumers different kinds of value. The consumer obtains functional value according to the product's attributes, but value also lies in the hedonic and experiential elements surrounding the product and services, and in the experience of creating and of consumption itself (Yachin, 2018). In other words, customers assess the value perceived and actively participate in its creation (Merz, Zarantonello, & Grappi, 2018).

Customer perceptions and expectations about a brand or company are central in the definition and assessment of value. The result depends on which services and resources the organization uses and the way it addresses the relationship process with its customers. Furthermore, the outcome is influenced by the organization's ability to meet customer expectations and goals (Smith, 2019).

A wide range of studies analyze the use of value in different services, such as tourism and hospitality (Gallarza, Arteaga, & Gil-Saura, 2019), telecommunications (Izogo, 2017), retail (Kim, Matsui, Park, & Okutani, 2019), and financial services (Dootson, Beatson, & Drennan, 2016). However, competitive pressures have grown in other service sectors, too, such as health care (Lakdawalla et al., 2018), public services (Osborne, 2018), and education (Botti, Grimaldi, Tommasetti, Troisi, & Vesci, 2017). Therefore, it is increasingly necessary to analyze these concepts with regards to other types of services. In particular, Spanish universities have not escaped the reality in which reduced public investments force academic institutions to develop management-based models and self-financing options. At the same time, academic fees continue to increase (Mahdi, Nassar, & Almsafir, 2019), while students can find learning and research opportunities anywhere in the world. Therefore, considering the increased competition among universities (Dixon et al., 2015), it is not surprising that the student experience has emerged as a highly relevant variable in university management models (Marris, 2018)

From a marketing perspective, students are the consumers of all the services offered by universities. The European Higher Education Area (EHEA) emphasizes value-based evaluations and questions related to student perceptions and experiences in the classroom (González-Marcos et al., 2015). This experiential educational context, which involves the consumption of services (Shaw, 2018), is highly complex, especially when it is offered online, featuring high levels of interactivity and change, which

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in turn encourage the creation of experiences (Smilansky, 2017).

Students' experiences can be understood as the result of the totality of their interactions with an educational institution. Following González-Rodríguez, Domínguez-Quintero and Paddison (2019), Shapiro et al., (2017), and Schmitt and Zarantenello (2013), we posit that students' experiences are determined by the knowledge and interactions that each student has about and with the institution, as well as the context in which the relationship develops.

According to these authors, interactions can occur either before or after the purchase and consumption processes. Thus, how students perceive and process the institution's attributes and characteristics in verbal, visual, and multisensorial form, as well as how they form judgments, attitudes, preferences, etc., influence their experience with the institution (Lewis 2018). Also, interaction can be direct or indirect, depending on whether the student's contact with the institution is direct or mediated by another agent, which influences the results of the interaction. The use of virtual learning environments makes it possible for students to have virtual experiences, where technology plays a mediator role (Moorhouse, Dieck, & Jung, 2018).

Furthermore, student-institution interactions always change over time, according to both the relationship's maturation time, as well as the evolution, changes, and innovations that organizations can introduce over time (Bryson, 2018). In the early phases of the relationship, the parties do not know each other; but as time passes, the relationship becomes habitual and marked by increased knowledge. The relationship may even be based on trust and commitment because the members have demonstrated their ability to fulfill promises (Hansen, Gronholdt, Josiassen, & Martensen, 2016). A satisfactory relationship between the student and the institution constitutes the basis for an optimal customer experience (Bishop, 2018). On the other hand, universities face the challenge of providing virtual learning environments where the students can relate with each other, besides accessing the organizational and learning resources (Goeser, Hamza-Lup, Johnson, & Scharfer, 2011).

In today's digital world, universities have of an increasing range of new media at their disposal that create new students' online experiences before and after their purchase. In this context, it is important to understand what elements influence the creation of experience, as

well as how website design affects the experience that the student can have (Tsay et al., 2018).

Schmitt and Zarantenello (2013) identify four important themes based on a review of the existing literature on digital environments that could be applied to the digital university context. First, online environments present a stage for identity building and identity play, where consumers use brands to represent themselves online (Bowen & Bowen, 2019). Second, online experiences are often tied to non-physical consumption and virtual products and services, leading to a growing dematerialization of objects and commodities (Boustani, 2019). Third, relationships among consumers are growing, facilitated by the fast increase in user-generated content; as consumers interact in their own networks, their relationship with brands changes (Liu, Burns, & Hou, 2017). Finally, the social landscape of consumers is changing as a result of social networking sites and the intersection of offline and online reality. This changes consumers' self-presentation, impression management, friendship building, and relationship management (Frantz, Pears, Vaughn, Ferrell, & Dudley, 2016).

Universities' names have become in a truly digital brand, used as a strategic asset that reflects the institution's quality, influence, and trustworthiness. They have a significant impact on the student decision-making process. Due to the connotations associated with the brand, students can obtain a first impression of the university, which facilitates their decision about whether to study there. On the other hand, students' experiences are often tied to the characteristics and potentialities of the digital environment. In this sense, digital learning environment quality is key, due to it not only allowing for the incorporation of a wide range of tools and resources that make the teaching-learning process possible, but it also allowing relationships and dialogue with other individuals, especially university staff and other students.

Figure 1 presents our proposed conceptual model for the online university student experience. That is, the student's experience comprises the quality of the virtual learning environment and assessments about the brand of the digital university.

2.3 Quality of the virtual classroom

In business-to-consumer environments, website quality is a key factor for e-commerce; customers' perceptions of website quality have positive impacts on
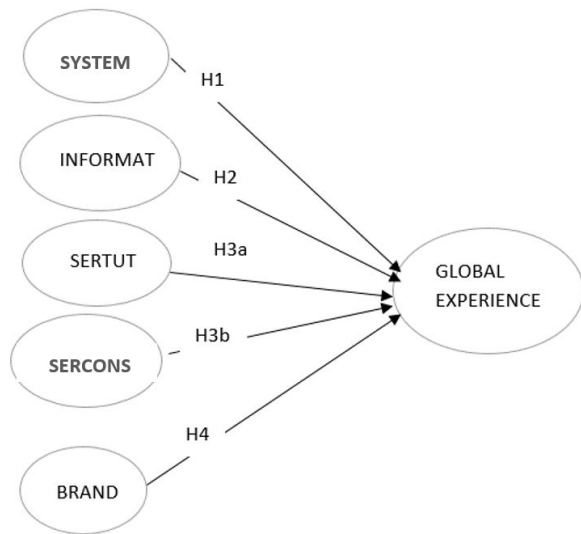
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Figure 1. Conceptual model.

their usage intentions (Ajay-Kaushik & Potti-Srinivasa, 2017; Chang & Chen, 2008) and also directly affect purchase intentions (Lin, 2007). As Buttle and Marklan (2019) and Chiu, Wang, Fang, and Huang, (2014) point out, the experience of an online customer is conditioned by the quality of the website, which defines the type of relationship the customer can establish with the brand, as well as the outcomes he or she obtains.

Several studies offer measures of website quality, and one that has become relatively widespread is the measure proposed by Lin (2007). According to this model, website quality is a multidimensional construct that includes the quality of the system, the quality of the information, and the quality of the service. This model is appealing, in that it explains quality by adopting a dual approach to both the information system and the customer or user (Wang, 2016). As Yu, Roy, Quazi, and Han (2017) point out, an approach focused on the information system implies that the determinants of customer acceptance are parameters such as website usability systems, accurate information, and transaction security. A customer orientation suggests that the attraction and retention of the customer by the online service provider is central and determined by characteristics of the relationship (Monferrer, Segarra-Moliner, Estrada, & Moliner, 2019; Pansari & Kumar, 2017). Lin (2007) also suggests that characteristics such as responsiveness, confidence, and empathy shown by the seller are decisive for establishing the quality of the treatment that the customer receives. Both these elements apply to higher education services: the technical characteristics of online classrooms are associated with the system, and the

teaching materials correspond to the information. Finally, the quality of the service is determined by the relationship established between the teacher and the students.

With respect to the quality of the system, we highlight that this refers to the technology that facilitates the operation of the virtual classroom, within the virtual learning environment. Elements such as ease of use, web design, and convenience thus determine quality, as perceived by the students (Al-Qeisi, Dennis, Alamanos, & Jayawardhena, 2014). In turn, interactivity levels might affect students' level of use of the information provided on the website (Kraushaar & Novak, 2019). The interface also determines some of the attractiveness perceived by the student, thereby conditioning the student's level of interaction with other members of the environment (So, Choi, Lim, & Xiong, 2012). Students also require feedback and responses from the faculty and staff. Finally, as Kauffman (2015) and Wu, Shen, and Chang (2015) point out, web design and interactivity are fundamental to the success of the virtual learning process. In particular, these two factors affect the level of student satisfaction and students' predisposition to engage in collaborative learning processes. Therefore, we propose the following:

H1.   The quality perceived in the system influences the student experience in relation to the university.

The quality of the information is measured as the value that the student receives from the informative contents and didactic resources available in the virtual classroom. Simonson, Zvacek, and Smaldino (2019) highlight which characteristics are most important in determining quality, including updated content, utility, accuracy, and presentation. Studies in the field of e-commerce also note the need to consider aspects related to the security and confidentiality of the information, especially when it comes to customers' personal or financial data (Bandara, Fernando, & Akter, 2019). In a virtual learning environment, information confidentiality probably pertains more to enrollment data, such as qualifications or grades (Montazer, 2018; Stich & Reeves, 2017). Overall, Xiao and Wilkins (2015) suggest that the quality of information improves the student-institution relationship, by reducing levels of uncertainty and improving levels of satisfaction. Therefore, we propose the following:

H2.   The perceived quality of the information influences the student experience in relation to the university.

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Finally, the service quality dimension is defined as the student's evaluation and judgment of the teaching process (Chong & Ahmed, 2015). Service quality is a determining factor in students' intentions to enroll in online universities, and Hamari, Hanner, and Koivisto (2017) note that responsiveness, trust, and empathy are critical factors to perceptions of a high-quality service in online environments. Parasuraman, Zeithaml, and Berry (1985, 1988) already established the relevance of these factors in face-to-face environments, and Akbar and Mannan (2015) confirm their importance for online services, including education. In this context, the service received by the student is offered by a teacher, who might function more as a tutor-teacher or more as a consultant-teacher. A consultant-teacher is responsible for student learning and continuous evaluations of academic progress. A tutor-teacher, in turn, focuses on the curriculum pursued by the student, acting as a mediator between the student and the institution in relation to any process or problem the student has. Both profiles are important. We thus formulate the following research hypotheses:

H3.   The quality perceived in the relationship between the student and teacher influences the student experience in relation to the university. Specifically,

H3a.   The quality perceived in the relationship between the student and the tutor-teacher influences the student experience in relation to the university.

H3b.   quality perceived in the relationship between the student and the consultant-teacher influences the student experience in relation to the university.

2.4 Valuation of the university brand

The brand of an academic institution exerts a significant influence on students' behavior. This brand offers protection, but above all, it identifies and differentiates the university from other academic institutions. Karaosmanoglu and Gultekin (2019) suggest that university branding gives graduates a sense of identification and a way to define themselves not merely as customers but as life-long members of the corporate brand community. Because a university is a service industry, Kaushal and Ali (2019) further explain that university branding must reflect the intangibility and inseparability aspects of education services. As a service brand, it requires a greater emphasis on internal marketing, because every employee is a consumer touchpoint, and service brands must help reduce the risk of intangibility. Brands are essential to consumers' social status; one benefit of university education is it bestows a certain status level (Williams & Omar, 2014).

According to Alraimi, Zo, and Ciganek (2015), the image of a higher education institution is a subjective reflection of the institution's quality, influence, and trustworthiness. Its image is a valuable, intangible asset, which significantly influences students' decision-making processes when choosing a university (James-MacEachern & Yun, 2017), as well as their initial trust. Through connotations associated with the brand, students obtain a first impression of the university, which facilitates their decision about whether to study there. Pimienta et al. (2016) argue that the student's image of a university evolves over time, linked to a vast system of values and associations that can change more or less. Also, the brand provides relevant information about the behavior of the institution and its ability to deliver on its promises (Dennis, Papagiannidis, Alamanos, & Bourlakis, 2017). This information is of vital importance for students when deciding whether to remain at the same institution or leave, which determines the consolidation of their relationship.

Jung and Seock (2016) suggest that brand awareness and image are decisive elements in the brand valuation process. They influence decision making even in situations with varying levels of uncertainty, and they also make it possible to develop a relationship based on trust and mutual commitment (Balaji, Roy, & Sadeque, 2016). Lee, Park, and Cameron (2018) and Patlan-Pérez and Martínez-Torres (2017) suggest that for universities a strong brand image can attract and retain the best students, teachers, and employees. For students, the image of the educational institution is central to their initial choice, growing loyalty, and recommendations to other potential students. For teachers and support staff, this image can enhance performance and productivity, while also generating emotional bonds, commitment, and cohesion between staff and the institution (Lee, 2019; Patlan-Pérez & Martínez-Torres, 2017).

The brand assessment thus directly influences students' experiences with the institution (Hsieh & Chang, 2016). The students' expectations of the academic institution involve not only academic results but also the processes and behaviors associated with the relationship as it develops over time. If students perceive that the institution is highly engaged in the relationship and fulfills its commitments satisfactorily, the university will likely meet their expectations well, producing a favorable experience. Therefore, we propose the following:

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H4. The assessment of the university institution's brand has a positive influence on the student experience in relation to the university.

3 Methodology

This research used an email survey sent to students enrolled in the different post-graduate programs of a digital university. Of the 2,003 students enrolled in the 2015/2016 academic year, 304 replied to the questionnaire (Table 1), which consisted of six sections on different aspects related to technological applications and information content, as well as the behaviors of tutors and consultants. The students also provided their assessments of the institutional brand.

The study variables are detailed in the Appendix A. These variables reflect the perceived quality of the virtual classroom and the evaluation of the university brand. For the quality of the virtual classroom, we followed Lin (2007) and measured the following: (1) the quality of the system according to the web design and degree of interactivity; (2) the quality of information through information capacity and security; and (3) service quality according to responsiveness, trust, and empathy. Concerning the quality of the system, web design refers to the level of usability, access, convenience, ease of use, and attractiveness that the web platform provides. Interactivity pertains to the capacity of the website user to participate interactively in the process, due to the presence of multimedia tools, such as feedback and multiple response mechanisms.

Regarding the quality of the information, information capacity refers to the ability to inform the user, precisely and efficiently, about services or products available on the website. With regard to resources and educational content, information capacity implies an ability to facilitate learning or improve the student's level of training, given the precision, degree of novelty, or utility of the teaching materials. The second dimension, security,

reflects the confidentiality of the student's personal and academic information. For service quality, responsiveness implies the level of utility the student perceives, in terms of responses received from consultants and tutors. Trust indicates perceptions of the credibility of the consultant or tutor. Finally, empathy suggests the ability of the faculty member, whether a tutor or consultant, to understand and respond to the students' needs adequately. Furthermore, the respondents evaluated the university brand based on their experiences as students.

Our survey approach does not enable us to derive a psychographic profile of the sample, in that the surveys of teaching quality could not obtain data related to students' economic situation, household composition, or lifestyles. Instead, the analysis began with an exploratory factor analysis to assess the unidimensionality of the scales. The Bartlett sphericity test produced a p-value of 0.000, thus rejecting the null hypothesis of uncorrelated variables. Factor analysis was therefore deemed appropriate. In addition, the Kaiser-Meyer-Olkin value was close to one. Next, we confirmed the reliability of the scales by calculating the Cronbach's alpha for each dimension and group. The values obtained for all constructs exceeded the value of 0.7 recommended by Nunnally and Bernstein (1994).

The final procedure reflected the recommendations for developing structural models (Hair, Black, Babin, Anderson, & Tatham, 2006). Specifically, we progressively eliminated, one at a time, items that failed to comply with any of the three criteria proposed by Jöreskog and Sörbom (1993)[2]. In the initial stage, we considered the absence of dimensions for each construct and the totality of the items loaded in a single factor. From the first-order factor analyses for each latent variable, we detected (1) correlations between the errors of the indicators that made up each construct and (2) some Lambda (λ) values that were less than 0.5. Before eliminating these items, though, we applied LM and Wald tests to each construct, so that

Table 1
Technical details

Universe	Students of a digital university during the 2015/2016 academic year
Sample unit	Students enrolled in postgraduate programs of the digital university in the second semester of the 2015/2016 academic year
Information collection method	Email with a link to the survey
Sampling procedure	Non-probabilistic, convenience method
Number of surveys	304 received, meaning a response rate of 15%
Collection period	July 18-September 10, 2016

we could verify either the existence of another underlying structure or the need for modifications to improve the results obtained.

Each construct was formed of different dimensions, which prompted us to adopt a rival model strategy (Hair et al., 2006). One of the rival models considered was a previously analyzed one, namely a model without dimensions. Ultimately though, the model with different dimensions for each construct emerged as better fitting the data than the initial model. Finally, complementary to the reliability analyses in the exploratory phase, we used two additional criteria to measure the consistency of the proposed scales: the composite reliability of the construct and the average variance extracted (AVE). All the constructs had adequate values according to these measures.

4 Results

To validate the structural model in Figure 1, we used partial least squares (PLS) regression and estimated the model in SmartPLS 2.0 (Ringle, Wende, & Will, 2005). To establish the significance of the parameters, we adopted a bootstrapping method for 304 subsamples, equal in size to the original sample. Moreover, we ensured convergent validity (see Appendix B) by suppressing any indicators whose factor loading was not significant or was

less than 0.7. The resulting model indicates reliability, in terms of the generally established criteria (Cronbach's alpha, composite reliability, AVE) (Table 2).

To assess discriminant validity, the only criterion that is applicable in PLS is that the AVE for each factor must be greater than the square of the correlation between any other pair of factors (Ab Hamid et al., 2017). This criterion is met, as Table 3 shows.

To assess the predictive capability of the structural model, we applied the criterion proposed by Falk and Millar (1992), such that the R-square values of each dependent construct should be greater than 0.1. Table 4 details the corresponding values.

The results confirm direct, intense effects of the assessment of the university brand on the experience (β = 0.408; p < 0.01; H4), which is consistent with the prediction that the brand can reduce uncertainty surrounding the intangible nature of the services that students receive. As predicted by Chang and Chen (2008), James-MacEachern and Yun (2017), and Patlan-Pérez and Martínez-Torres (2017), students use the university brand to meet their self-fulfillment or professional development needs by acquiring this service.

We also confirm prior findings related to the quality of the system (β = 0.231, p < 0.01; H1), in terms of the importance of feedback, interfaces, navigability, and ease of use (Kauffman, 2015; Lin, 2007; Wu et al., 2015). These features of the environment in which the learning process takes place are crucial to student assessments. They also strongly influence the effort and time that individual students dedicate to the learning process, by ensuring the process can be simple, fun, and pleasant, such that they generate positive associations and encourage a positive experience.

The effect of the service provided by consultant-teachers (β = 0.172; p < 0.01; H3b) has a significant influence on student experiences. When the student

Table 2
Reliability measures

	AVE	Composite Reliability	Cronbach's α
INFORMAT	0.768	0.8690	0.7009
BRAND	0.6847	0.8967	0.8466
SERCONS	0.8202	0.9319	0.8904
SERTUT	0.8976	0.9460	0.8864
SYSTEM	0.8790	0.9356	0.8629

Table 3
Discriminant validity

	INFORMAT	BRAND	EXPERGL	SERCONS	SERTUT	SYSTEM
INFORMAT	**0.8765**					
BRAND	0.5738	**0.8274**				
EXPERGL	0.5794	0.7347	**N.A**			
SERCONS	0.5573	0.5184	0.5470	**0.9056**		
SERTUT	0.5161	0.5358	0.5782	0.5252	**0.9474**	
SYSTEM	0.5680	0.6228	0.6464	0.4766	0.4363	**0.9375**

Note: diagonal numbers are the estimated correlations between the factors. The numbers on the diagonal are the square roots of the average variances extracted.

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Table 4
Hypotheses tests

Hypothesis	Standardized β	Bootstrap t-value	P value
H1. The quality perceived in the system influences the student experience in relation to the university.	0.231***	3.0372	0.003
H2. The perceived quality of the information influences the student experience in relation to the university.	**0.073**[NS]	**1.3766**	**0.178**
H3a. The quality perceived in the relationship between the student and the tutor-teacher influences the student experience in relation to the university.	0.095**	2.1679	0.022
H3b. The quality perceived in the relationship between the student and the consultant-teacher influences the student experience in relation to the university.	0.172***	3.9095	0.000
H4. The student's assessment of the institution's brand has a positive influence on the student experience in relation to the university.	0.408***	6.2755	0.000

Notes: $R^2 = 0.642$. $Q^2 = 0.617$ ***. $p < .001$; $p < .01$; ** $p < .05$; * $p < .10$; [NS] not significant.

acquires this service, the goal is to satisfy his or her learning needs, which can only be achieved by teachers who take charge of the teaching-learning process. This variable also contributes to the long-term development of the brand (Patru & Balaji, 2016), in that excellent human resources (teachers) indicate the quality of universities. The service quality provided by tutor-teachers ($\beta = 0.095$; $p < 0.01$; H3a) also has an effect, though a weaker one than the other influences we have outlined. Students appreciate a professional, linked to the institution, who can help them define their curricula, guide them, and help them resolve queries or problems associated with administrative and academic procedures (Lee, 2019). However, the effect of the information provided to the student is not significant ($\beta = 0.073$, $p < 0.01$; H2), contrary to the findings of Lee (2019). Perhaps the standardization of information (e.g., consistent teaching platforms, similar web designs) and increasing use of platform-based resources provided by universities, which make it easy for students to locate information quickly, reduces the importance of making up-to-date, orderly, and important information available to students, as might universities' efforts to achieve transparency in their information transmission.

5 Discussion

Strategic marketing models developed in highly competitive sectors are also useful for managing organizations with a more social and service-oriented purpose. As we show, concepts such as customer experience, with their high relevance for the design of strategic marketing in both physical and online environments, can help in the effective management of academic institutions too.

University education providers must increasingly adopt a student orientation to guarantee their survival and positioning in the market. To adapt their services to the needs of students, universities create digital learning environments. There, new models of teaching and learning are put into practice, where the interaction between the student and other individuals, and with technology, is critical in the student experience.

Following the works of Schmitt and Zarantenello (2013) and Shapiro et al. (2017), we propose that the quality of a virtual classroom, measured in three dimensions (quality of the system, quality of information, and service quality), together with the students' brand assessments, determine their experience as consumers of the service. By analyzing a sample of 306 students of one digital university, we confirm three of the four hypotheses. In particular, the quality of the system, the quality of the service, and evaluations of the brand define students' experiences with the institution. The brand assessment is an essential factor. At the digital university, this finding is mirrored in the high loyalty rates exhibited by the community of students and graduates (over 70%), as well as the strong image it has developed as a leader in online education. The university was the first one in the world to offer a totally online education, so it has managed to achieve a reliable reputation linked to innovation and educational quality. All universities should recognize the importance of their brand name at a strategic level. In addition to facilitating their identification, the name of the university acts as a trademark that promotes recognition of the institution.

Further evidence in support of the importance of brand assessments comes from the strong student or

consumer orientation that permeates the digital university's organizational culture. As an institution that provides distance education, its educational and management model is designed to meet the needs of particular students: those older than 30 years, who seek to reconcile their existing work and personal commitments with their desire to pursue lifelong learning. In addition, most students already have professional careers, so they seek academic training that offers a practical, applied approach. The university's ability to fulfill these promises is critical and depends on its relationship with its current students, as well as its ability to attract new ones. These students are demanding and well informed, with strong purchasing power, but they suffer from time limitations. Accordingly, the credibility of the university is based on students' assessments of its brand, the experience they gain, and their loyalty levels.

The quality of the system, along with the relationship that the student maintains with the virtual campus, is also fundamental to the student's online university experience. Kraushaar and Novak, (2019), Park, (2009) and Simonson et al. (2019) cite three essential barriers to distance learning in online settings. The first two pertain to the technology that supports the service, namely the ease of use and perceived utility. The third reflects the threat of feelings of isolation or loneliness that students might experience during their studies. Thus, students who pursue online learning must have some technological competences; skills that seem natural to a digital native may represent challenges for digital immigrants. Accordingly, students who decide to pursue higher education through an online university must recognize the need to adopt a technology that will exhibit greater or lesser degrees of ease of use and perceived utility.

The experience will be better if the technology that supports the virtual classroom allows for easy navigation and easy, fast, and intuitive access to content, as well as making the process of acquiring knowledge and skills practical, fun, and collaborative. The availability of external multimedia resources and means of communication with other community members can also enhance the student experience. Some sense of accompaniment is vital to reduce the feelings of loneliness and isolation that tend to affect online students; they need to know that they are not alone and that they can count on the help of consultant- and tutor-teachers. The student experience will be better when the academic staff demonstrates strong academic and professional expertise and skills related to the topic area, as well as professional commitment to empathizing with students, understanding their problems, and helping them resolves complex situations.

Recognizing these insights, the digital university has committed to continually renewing its web environment, with the ongoing incorporation of 2.0 tools, to ensure an online environment that supports a direct, forthcoming relationship between students and academic staff. Besides the direct impact of these efforts on the students' experience, they also indirectly influence the image of the university's brand and students' assessments of it. In this sense, they can establish and shape the image of an innovative university that is simultaneously closed and open.

Finally, the quality of the information, and in particular the resources and teaching materials provided, is not a determinant of students' experience with the university. For conventional students who first come in contact with a traditional university environment, the quality of teaching materials is critical to the learning process. But for students who already have the knowledge and relevant work experience in their study area, and who participate in the learning process online, the importance of these resources and teaching materials decreases. These students are aware of their needs, such that they are able to judge the quality of the resources and search for updated resources in the network on their own.

6 Limitations and Future Research Lines

The results obtained show the strategic role of the students' experience in academic institutions management. Also, it is shown that it is necessary to identify the elements that influence that experience in order to design effective actions. In the online context, this is fundamental, as universities face the digital challenge by incorporating virtual learning environments.

Although the results obtained can be generalized to the university context, the various limitations of this study must be considered. Firstly, it should be noted that the data correspond to a single digital university, so it is possible that the results are biased by the characteristics of the institution analyzed. On the other hand, the students analyzed are postgraduate students, so it is possible that students from lower levels, and with a different socio-demographic profile, may provide some different results.

The novelty of the subject encourages us to propose future lines of research, such as analyzing different student

profiles, or comparing between the determining factors of the student experience, in the online and offline contexts.

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Appendix A
Study Variables

Variable		Dimension	
Assessment of learning resources and teaching materials		System Quality (SYSTEM)	Likert 1-5
Assessment of the virtual classroom			
Assessment of communication in the virtual classroom			
Assessment of the media and communicative resources of the classroom (chats, wikis, forums)			
Assessment of student services			
Organization of learning materials and resources		Information Quality (INFORMAT)	Likert 1-5
Influence of learning resources on the assimilation of knowledge			
Level of updating of learning resources			
Possibility of using additional external sources of information in the classroom space			
Level of fit of the information offered to the student's needs			
Information is treated with seriousness			
Tutor teacher	The tutor teacher teaches me in an appropriate way	Quality of service Tutor (SERTUT)	Likert 1-5
	The tutor teacher responds clearly		
	The tutor teacher accompanies the student		
	The tutor teacher encourages me to keep the pace of study		
Consultant teacher	The consultant teacher masters the subject	Quality of service Consultant (SERCONS)	Likert 1-5
	The consultant teacher has adequately planned the learning		
	The consultant teacher responds within an appropriate timeframe		
	The consultant teacher offers personalized treatment		
The digital university improves my skills in virtual environments		Brand university rating (BRAND)	Likert 1-5
I take a positive view of the qualification offered by the digital university			
The digital university allows me to interact with people in my area			
I feel I am a member of the digital university community			

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Appendix B
Reliability and Convergent Validity

Factor	DIMENSION	Indicator	Loading	T Value
Information Quality	INFOR1	INFORMATI1	.79	16.01
		INFORMATI2	.89	17.03
		INFORMATI3	.89	17.12
	INFOR2	SECURI1	.99	24.89
		SECURI2	.58	6.47
System Quality	SYST1	WEBDESG1	.85	18.24
		WEBDESG2	.84	18.67
		WEBDESG3	.96	23.88
		WEBDESG4	.85	19.35
	SYST2	INTERACT1	.93	25.63
		INTERACT2	.93	25.28
Tutor Service Quality	SERTUT1	RESPONS1	.98	16.71
		RESPONS2	.89	18.49
	SERTUT2	TRUST1	.88	17.54
		TRUST2	.92	20.62
	SERTUT3	EMPATH1	.93	22.12
		EMPATH2	.82	20.20
		EMPATH3	.73	15.32
Consultant Service Quality	SERCONS1	RESPONS1	.71	13.84
		RESPONS2	.74	15.85
		EMPATH1	.80	12.69
		EMPATH2	.91	14.32
	SERCONS2	TRUST1	.89	15.23
		TRUST2	.93	23.62
University Brand	BRAND	BRAND1	.68	12.11
		BRAND2	.72	12.90
		BRAND3	.80	14.86
		BRAND4	.78	14.54

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Conflicts of interest:
The authors have no conflict of interest to declare

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