Article

The Impact of Brand Relationships on Corporate Brand Identity and Reputation—An Integrative Model

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Abstract: The current literature focuses on the cocreation of brands in dynamic contexts, but the impact of the relationships among brands on branding is poorly documented. To address this gap a concept is proposed concerning the relationships between brands and a model is developed, showing the influence of the latter on the identity and reputation of brands. Therefore, the goal of this study is to develop a brand relationships concept and to build a framework relating it with corporate brand identity and reputation, in a higher consumer involvement context like higher education. Structural equation modelling (SEM) was used for this purpose. In line with this, interviews, cooperatively developed by higher education lecturers and brand managers, were carried out with focus groups of higher education students, and questionnaires conducted, with 216 complete surveys obtained. Data are analyzed using confirmatory factor analysis and structural equation modelling. Results demonstrate that the concept of brand relationships comprises three dimensions: trust, commitment, and motivation. The structural model reveals robustness regarding the selected fit indicators, demonstrating that the relationships between brands influence brand identity and reputation. This suggests that managers must choose and promote brand relationships that gel with the identity and reputation of the primary brand they manage, to develop an integrated balanced product range.

1. Introduction

Consumer brand knowledge is multidimensional and needs to be understood and accounted for, in order to provide the right perspective and background for research on branding as it relates to consumers (Keller 2003). This research aims at developing a concept that defines the relationships among brands and analyzes the influences on brand identity and the reputation of corporate brands.

The context under study is higher education. We propose a model for higher education institutions which integrates the particularities of brand relationships in the management of corporate brand identity and reputation. Academics and professionals value reputation as a precious asset, as it reduces stakeholders' uncertainty about the future and increases the value of goods and services. Where branding is concerned, the strength of reputation lies in the corporate brand's promise, therefore companies should keep it as a means of managing corporate reputation (Argenti and Druckenmiller 2004). The scientific community believe that brand reputation depends on brand identity, so a good brand reputation is the result of a good management of that identity.

While brand relationships are known to have impacts on brand identity, the literature on this subject is scarce. Relationships have been traditionally positioned in the theory of networks among companies (Ford et al. 2003; Hakansson and Ford 2002; Hakansson and Snehota 1989, 1995). Although previous studies may acknowledge the influence of brand relationships on the identity of organizations (Hakansson and Snehota 1989, 1995), no empirical studies have supported this.

In the current context, where the environment is increasingly dynamic and transformations are difficult to predict, the development of technology results in increasing interactions among corporate brands, as well as between corporate brands and their consumers. These end-users are now, more than ever, considered as cocreators of brands (Hatch and Schultz 2010; Madden et al. 2006; Payne et al. 2009; Prahalad and Ramaswamy 2004; Da Silveira et al. 2013). Similarly, we argue that the identity of a corporate brand is developed as it adapts to consumers' demands. It develops alongside other recognized brands to build an identity with a desirable reputation among all stakeholders, especially consumers.

In line with the development of the proposed model regarding branding, a number of researchers, Kapferer (1986, 2008), Fombrum (1996, 2006) and Vidaver-Cohen (2007), focus on reputation. Other recent studies on reputation in higher education (Priporas and Kamenidou 2011; Suomi 2014) were based on the reputation of researchers and consultants, so that the model could provide insights from academics with responsibilities in the field. The current study is intended to constitute policy advice to general managers and to those in positions of responsibility for higher education brands. This study is distinctive because it:

-   helps fill a gap in the literature by supplying a concept of brand relationships
-   introduces the concept of brand relationships in the management of brand identity and reputation in higher education;
-   relates the concept of corporate brand reputation with the management of corporate brand identity;
-   leads brand managers into new perspectives for building a new dynamic construct under a brand relationship approach.

This paper is organized as follows. Section 2 highlights the relevant literature and describes the structure of the proposed framework for managing corporate brand identity under a relational approach. Section 3 provides an explanation of methods used to assess the concept of corporate brand relationships and the structural model, together with a brief description of the sample. The hypotheses and definitions of the measures used are provided in this section. Section 4 reports our findings and summarizes the model validity and applicability. Section 5 offers a brief discussion of the results and draws the conclusion together with recommendations for future research.

2. Literature Review

This review provides detailed information about the conceptualization of the constructs and measures used in the developed model, to manage corporate brand identity under a relational approach. The methodology used to assess the references was search and analysis of the databases at our disposal, like B-ON, Science Direct, JSTOR, ISI Web of knowledge, Scopus, Springer Link, and others.

2.1. Brand Relationships

The concept of brand relationships needs clarification in order to investigate the influence of relationships on corporate brand identity, since relationships are vital for the interactions between consumers and brands. Consumer–brand interactions extend beyond mere utilitarian benefits (Aggarwal 2004). According to Fournier (1998), relationships constitute a series of repeated exchanges between two parties known to each other, who also evolve in response to these exchanges and to fluctuations in the contextual environment. Fournier (1998) and Muniz and O'Guinn (2001) argue that people form relationships with brands in the same way that they form relationships with each other in social contexts. We can extend this approach to the relationships between brands and state that brands tend to relate to each other in a social context and that this association can be used to attract specific members of the public. This is not the same thing as a brand alliance, because such alliances involve all joint marketing activities in which two or more brands are simultaneously presented to consumers (Rao et al. 1999; Simonin and Ruth 1998). In this study, brand relationships are mutually oriented interactions among corporate brands whose target is education (universities and other higher education institutions) and other reputed brands which may attract students to create a commitment. The definition of relationships between companies (Hakansson and Snehota 1995) supports this perspective. A relationship is a mutually oriented interaction between two reciprocally committed parties (p. 25). The parties agree that the notion of a relationship is defined by concepts of mutual orientation and commitment over time, which are common in interactions between brands.

The specific characteristics of corporate brands make them different from other brands: Their bases are brand promise, multidisciplinary roots, and medium to long-term gestation. Their focus is external focused, but they are largely supported by internal stakeholders, who value highly communication and visual identity (Balmer and Gray 2003); these facts make it necessary to adapt the dimensions of brand relationships to these notions. This required that we review the literature on services focused on the theory of relational networks and branding and search for characteristics that suited the concept of the relationships among brands connected to education services.

Five different but related dimensions were used to assess the quality of the relationships in the context of services in the B2B markets: recognized quality of the service, trust, commitment, satisfaction, and service quality (Rauyruen and Miller 2007), but there is little empirical investigation on the subject. However, the empirical studies of Dwyer et al. (1987) and Moorman et al. (1992) concluded that the quality of relationships is characterized by three dimensions: trust, commitment, and satisfaction. Berry (1995) emphasizes the relationships that customers have with service companies. Beatty et al. (1988) are in favor of trust and commitment to explain the mechanisms underlying stable preferences. Other researchers examined the roles of trust and commitment in the relationships that customers develop with service companies (Garbarino and Johnson 1999; Sirieix and Dubois 1999). Chaudhuri and Holbrook (2001) and Kennedy et al. (2000) found a positive relationship between trust and commitment to consumer products. Most recently, Alkhawaldeh et al. (2020) accessed the effect of brand familiarity and perceived service quality on brand image as and explored the position of brand image on student´s satisfaction. The findings showed that familiarity with the brand and perceived quality of service had an important and beneficial connection with the image of the brand and there was an important and positive connection between brand image and students´ satisfaction. Yet, these results were tested in the private field, and ours is focused on public institutions.

Next to trust we take commitment, recently described as an important major aspect of strategic partnerships (Søderberg et al. 2013). We followed the definition of Hardwick and Ford (1986) and Wilson (1995). Commitment influences or benefits internal and external stakeholders' perceptions of future value. Failing to find a scale characterizing the commitment among brands, we developed a scale procedure to select items for this dimension.

Motivation has to do with the internal and external variables stakeholders consider when choosing an educational institution. It is also based on the relationships that the university/institution is able to provide. The scale procedure that we followed had to be adapted, so we decided to develop

a scale procedure to select items for this dimension as well, because we could not find a suitable scale in the literature.

2.2. Corporate Brand Identity

The past few years have witnessed a burgeoning interest—among both practitioners and academics—in consumers' "love" for brands (Batra and Bagozzi 2012). Brands are frequently represented in the minds of consumers as a set of humanlike characteristics (van der Lans et al. 2014). In this context, recognized higher education institutions tend to evoke feelings and emotions like "love" in students and prospective students. Most of the recognized faculties in the country in which this research was conducted behave like corporate brands by demonstrating specific characteristics that distinguish them from their peers. Legally, they are part of a university that aggregates them, but brand images of faculties are so strong and distinctive from one another that they can be considered as corporate brands. According to Muniz and O'Guinn (2001) there are brand communities of faculties. These authors define a community as a core construct in social thought and a brand community is a specialized, nongeographically-bound community, based on a structured set of social relations among admirers. We readily become aware of these faculty brand communities when students choose one in which to study after finishing high school. Balmer et al. (2010) used business schools as a model to investigate corporate brand management and identification. In addition, according to Han et al. (2018), the establishment of good interpersonal relationships among community members will enable members to have a sense of belonging and social identity, thereby enhancing customer satisfaction within the community.

Kapferer (1986, 2008) refers to the prism of brand identity as consisting of an internal part- brand "culture," "personality," and "self-image", as well as an external part—"physical dimension," "relation," and "reflected consumer." He considers the external part of the identity prism highly important, especially in the case of corporate brands, since it is exposed to constant interactions with the public. "Reflected consumer" is an external and intangible dimension which reflects the way the consumer wishes to be regarded for "using" a certain brand (Kapferer 1986, 2008). This dimension is characterized by the following features: being better prepared for the labor market; being more capable of creating/innovating as successful professionals; and professionals with high credibility. The relation dimension has tangible and intangible aspects. It defines the behavior that identifies the brand and the way it interacts with its consumers (Kapferer 1986, 2008). It is characterized by the following: friendliness, respect, trust, motherly and close. Finally, the "physical" dimension of brand identity is defined by Kapferer (2008), as an exterior dimension that communicates the physical traits, colors, forms, and qualities of the brand. This dimension has features such as: the physical traits of the university/institution; modernity, sophistication, functional, and adequate.

2.3. Brand Reputation

Reputation is considered the most valuable asset of an organization, for the following reasons: its positive effects on reducing stakeholder uncertainty about future performance; the trust it creates in the public; the expectation of being rewarded for the excellence of goods and services. Fortune Magazine published a list of The World´s Most Admired Companies, which reveals that a 5 percent increase in reputation of an entity corresponds to a 3 percent increase in its market value. According to Fombrum (1996), such an organization attracts qualified employees and external investors; so, the defense of reputation is the cause of the growing interest in corporate brands. Vidaver-Cohen (2007) based her concept of reputation on the Rep Trak model (Fombrum 2006), which was successfully adapted to a business school. Suomi (2014) and Priporas and Kamenidou (2011) followed the same model in their studies of branding and reputation in higher education. The prime objectives of this study are: to measure and define the concept of brand relationships (relationships among brands) and demonstrate the validity and reliability of its dimensions; to integrate the concept of brand relationships in the management of corporate brand identity as an antecedent of the external part of identity; and to integrate the concept of brand reputation in the management of corporate brand

identity, showing that it is a result of the management of the external part of identity under a relational approach.

3. Methodology

Service brands act in dynamic contexts, where brand building is developed with the help of consumers. In higher education, this is particularly visible, as students are consumers (they pay to attend university) and staff are part of the university´s identity. We thought it would be appropriate to interview a sample of engineering students, as engineering faculties are recognized for developing highly salient brand identities based on their societal interventions (e.g. building bridges and private infrastructure, developing innovative artifacts, processes, and technologies for industries that are frequently funded by national/international research centers).

3.1. Research Stages

We developed this research into the two stages explained below.

1. Exploratory research used a case study methodology developed in two engineering faculties to find items to characterize the dimensions proposed in the model; and
2. Confirmatory research was pursued by developing a questionnaire for higher education engineering students. A total of 216 complete surveys were obtained.

In the first stage, we followed King (1991), Balmer (2001), and Aaker (2004), who stated that senior management members must be selected as informants because they are important in terms of corporate brand management. Further, informants who had day-to-day strategic management responsibilities were also selected. We conducted in-depth interviews with lecturers/researchers and focus groups with students. Interviews were developed for senior management and staff, and focus groups were created for students at undergraduate, master, and doctoral levels. Before the interviews were conducted, several preparatory procedures were undertaken. These included discussions with academics and practitioners national and internationally recognized in higher education (Barros et al. 2011). These discussions indicated the necessity of having a protocol in the interviews and focus groups. This initial study marshaled insights from thirteen in-depth interviews (seven in one faculty and six in the other), following a predesigned interview protocol. Each interview lasted for about two hours, and some informants were interviewed more than once. All interviews were recorded with the permission of interviewees. Four focus groups of students were created, two in each institution. Each focus group had six to eight students. To ensure the accuracy of interview data, we conducted member checks (Lincoln and Guba 1985). In addition to interviews, desk research was conducted by consulting faculties' websites and media news.

Data were coded first by hand, because we thought this would bring us closer to the data. Both stages were coded separately. In accordance with the general protocol for a previously designed qualitative study, data collection, analysis, and interpretation were undertaken simultaneously, generating tables of synthesized data. Simultaneously, several long meetings were held between the authors to obtain an in-depth understanding of the phenomena under study.

This exploratory research suggested that, in contexts of high consumer involvement, the relationships of a corporate brand with highly recognized brands have a definite impact on the identity and reputation of the corporate brand, by influencing the perceptions of the stakeholders and the educational services being offered.

This initial research suggested that corporate brand relationships with recognized brands have impacts on identity and reputation. To confirm this conclusion, a second stage was designed, in which the proposed model (with the selected dimensions and items previously selected in the first stage) was tested. See Figure 1. A questionnaire was developed for higher education engineering students; 216 complete surveys were obtained. The data permitted us to validate a new concept defining the relationships among brands from the students' point of view. The investigated relationships were the ones among corporate brands whose mission was education; these included

universities and other higher education institutions and strategic partnerships with national reputed research centers or international reputed universities such as MIT, Harvard, and Oxford, with which these brands interact in the context of conjoint degrees, international mobility, or other forms of interaction. To define each dimension, we adopted a holistic perspective for reviewing the literature on several fields of study, including B2B marketing, psychology, and organizational studies. We developed a procedure to determine the pool of items to use in this research; these are shown in Table 1.
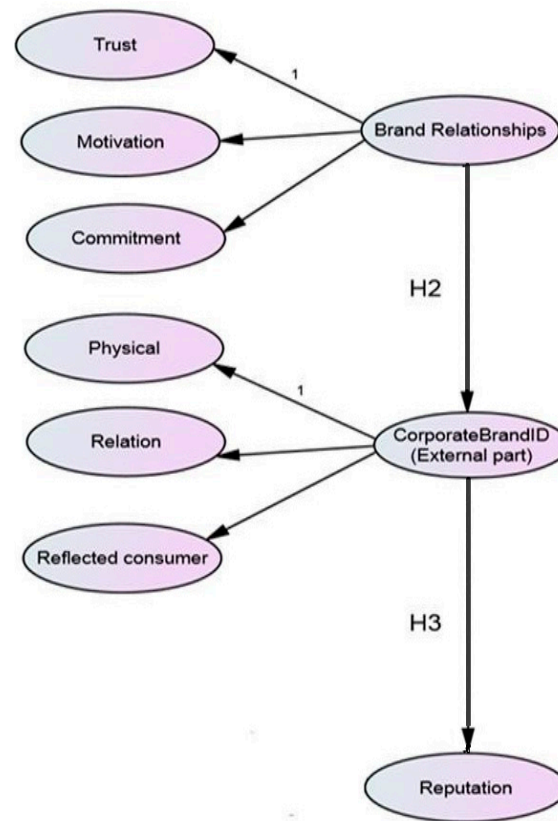
Figure 1. Proposed Model (developed by the authors).

Table 1. Summary of Procedures to Develop New Multi-Item Scales.

Procedure to Develop Multi-Item Scales	Techniques and Indicators
1—Develop a theory	Literature review and discussion with experts
2—Generate an initial pool of items for each dimension/scale	Theory, secondary data, and thirteen interviews with lecturers and university managers, four focus groups of students (bachelor, master, and doctoral)
3—Select a reduced set of items based on qualitative judgment	Panel of ten experts (national and international, academics, and practitioners)
4—Collect data from a large pretest sample	Pretest on a sample of eighty higher education Students
5—Perform statistical analysis	Reliability; factor analysis
6—Purify the measures	Analysis of the results of the pretest sample and discussion with experts
7—Collect data	Survey of higher education students (216 complete surveys)
8—Assess reliability and unidimensionality	Cronbach's alpha and factor analysis
9—Assess validity	Construct (AVE and CR), discriminant (comparison between the squared root of AVE and the simple correlations), and nomological validity (significant simple correlations examination)

10—Perform statistical analysis	Confirmatory factor analysis (CFA)
	Structural equation modelling (SEM)

Sources: Adapted from Churchill (1979) and Malhotra (1981, 2004). AVE—Average Variance Extracted; CR—Construct Validity.

3.2. Proposed Model and Testing

Regarding the first construct—brand relationships—we found that it is formed by three dimensions: trust, commitment, and motivation. Trust was adapted from existing scales in the literature, but motivation and commitment (although based on the concepts of Hardwick and Ford (1986) and Wilson (1995)) were developed in this research, by using confirmatory factor analysis (CFA). The scales used to define the brand relationships construct were found to be valid and reliable.

To test the structural model, we used corporate brand identity (external part), which was developed in a previous study. The items used to characterize the physical dimension, the relation and the reflected consumer dimension were the result of previous research pursued by Barros et al. (2016). The authors used the external part of the brand identity prism to argue that the relationships among brands (brand relationships) influence the external part of corporate brand identity and reputation.

The result of a well-managed corporate brand identity is a positive reputation. Therefore, brand reputation is the expected result of an active corporate brand identity management under a relational approach. It is widely suggested in the literature that identity precedes reputation (Burmann et al. 2009; de Chernatony 1999; Kapferer 1986, 2008). Corporate brands should actively choose and select recognized brands with which to develop relationships, to bridge the gap between brand identity and reputation. The result of this management should be an increase in brand reputation.

We also used the reputation concept unidimensionality, developed by Vidaver-Cohen (2007), to connect with this research. Data were analyzed using CFA and structural equation modeling (SEM). A structural equation model was developed to test the brand relationships concept as an antecedent to corporate brand identity and reputation. According to Nachtigall et al. (2001), SEM represents the relationship between latent variables (brand relationships, corporate brand identity, and brand reputation in our model) and their manifest or observable indicators (the items that characterize the latent variables). The most prominent feature of SEM is the capability to deal with latent variables. These variables are connected to observable ones by a measurement model (Edwards and Bagozzi 2000).

3.3. Research Hypotheses

Authors like de Chernatony, (1999) and Kapferer (1986, 2008) state that brand identity precedes brand reputation. It is our aim to confirm this hypothesis, in order to be able to argue that the management of corporate brand identity is developed under a relational approach. It follows that the choice and selection of recognized brands to develop should be carried out by the brand management team, taking into account the fact that brand identity develops and interacts with the external dynamic environment. We propose three research hypotheses:

Hypothesis 1 (H1). *The constructs trust, commitment, and motivation are a part of a higher dimension construct named brand relationships;*

Hypothesis 2 (H2). *The brand relationships construct influences the external part of corporate brand identity; and*

Hypothesis 3 (H3). *The external part of corporate brand identity influences brand reputation.*

We conducted CFA with the three second-order constructs: brand relationships, corporate brand identity, and brand reputation, using a total of 34 measures, detailed as follows:

(a) A list of eighteen items was obtained from qualitative research to measure the constructs that define the brand relationships concept: trust (7 items), motivation (7 items), and commitment (four items);

(b) Eight items were considered before testing the validity of the measurement model. The guidelines followed by the literature regarding SEM suggested a drop of T4. In line with this, the trust dimension was characterized by seven items;

(c) A list of thirteen items was derived from previous research by Barros et al. (2016), regarding corporate brand identity (external part) and its measures: physical (four items); relation (five items); reflected consumer (four items);

(d) A list of four items was adapted from the brand reputation scale developed by Vidaver-Cohen (2007). Previously, ten items had been selected from the framework, but we found that this concept was bidimensional, so, we selected one dimension that we considered to be more connected with this research. After analyzing the measurement model, we decided to maintain three of the four items.

We began by developing measures for the concepts we intended to connect: brand relationships, corporate brand identity (external part), and brand reputation. First, we tested construct reliability and unidimensionality for the proposed measures for brand relationships: trust, commitment, and motivation. The same procedure was followed for brand reputation. The measures that formed corporate brand identity have been analyzed previously, and the construct has been found to be reliable and unidimensional. Next, we developed the measurement model for the brand relationships concept (using CFA). The results regarding the selected fit indices were considered acceptable. After dropping one item from the trust dimension, we developed the second-order model. The results revealed robustness regarding the selected criteria. Finally, we tested the structural model, using brand relationships as the cause of the salience of the external part of corporate brand identity and brand reputation as the result of the management of corporate brand identity (external part), using a relational approach.

4. Results

4.1. Unidimensionality and Reliability of Scales for Measuring Brand Relationships, Reputation and Corporate Identity

The first-order model had three factors (trust, commitment, and motivation) and nineteen corresponding reflective indicators, as listed in Tables 2 and 3. The goal of most research projects is not just to develop unidimensional and reliable measurement scales, but to build and test theory. To summarize the data in terms of a set of underlying constructs, a factor analysis was conducted. We measured the unidimensionality and reliability of the proposed scales. To measure unidimensionality, we conducted principal component analysis with varimax rotation and Kaiser normalization to each scale. The scale items that did not show factorial stability were candidates for elimination. To measure reliability, we selected Cronbach's alpha.

Table 2. Initial and final research constructs and measures.

Construct	Initial Full Measured Items *	Source
Trust	The connections between my university/institution and the recognized brands (INESC, INEGI, ISISE, CCT, CALG, ALGORITMI; MIT, Harvard, Oxford…) with whom it relates T1—make me feel safe T2—are trustable T3—are a guarantee T4—are transparent (honest)—deleted while testing the measurement model of brand relationships for the sake of discriminant validity between trust and commitment T5—are sincere	Adapted from Morgan and Hunt (1994) and Gurviez and Korchia (2002)

	T6—are interesting T7—influence the curricula offer of my university/institution T8—contribute to improving the answers to students' needs	
Commitment	Attending this university/institution allows me C1—to achieve (have access to) important relationship networks C2—to be able to play a major professional and social role C3—to be influential C4—to reach technical and scientific excellence	Concept based on Hardwick and Ford (1986) and Wilson (1995), but the scales are new in the literature; Sources of influence: informants + focus groups + experts + desk research
Motivation	The connections between my university/institution and the recognized brands (INESC, INEGI, ISISE, CCT, CALG, ALGORITMI; MIT, Harvard, Oxford…) with whom it relates M1—give credibility to the lecturing process M2—facilitate access to research M3—facilitate access to the labor market M4—facilitate access to a top career M5—give credibility to the university/institution in the eyes of the labor market M6—facilitate access to an international career M7—foster entrepreneurship	New scale in literature; sources of influence: informants + focus groups + experts + desk research
Reflected consumer	I believe that society in general considers graduates of my university/institution RC1—better prepared for the labor market RC2—more capable of creating/innovating RC3—successful professionals RC4—professionals with high credibility	Developed in previous research
Relation	I feel that the relationship between my university/institution and me is R1—friendly R2—respectful R3—trustable R4—motherly R5—close	Developed in previous research
Physical	F1—the facilities of my university/institution are modern F2—the facilities of my university/institution are sophisticated F3—the facilities of my university/institution are functional F4—the facilities of my university/institution are adequate	Developed in previous research
Reputation	Please classify the items below from 1—poor to 5—high: Rep2.1—intellectual performance (retain/recruit prestigious lecturers/investigators; high levels of scientific publications…) Rep2.2—network performance (attracts first-class students; high employment rate; strong links between students and the industry…) Rep2.3—products (prestigious degrees; competent graduates…) Rep2.4—innovation (innovative methodologies; rapid adaptation to changes; innovating curricula…) deleted after analyzing the measurement model (standardized residual values) Rep2.5—provided services (strong relations with the exterior; specialized tasks; high level of instruction by lecturers and staff…) Rep2.6—leadership (strong and charismatic leaders; organized and competent management; vision for future…) Rep2.7—corporate governance (open and transparent management; ethical behavior; fair in transactions with stakeholders…)	Adapted from Vidaver-Cohen (2007)

Rep2.8—work environment (equal opportunities; reward systems; care for the welfare of the staff and students…)
Rep2.9—citizenship (promotes services to society; supports good causes; acts positively in society; open to the industry and to society…)
Rep2.10—financial performance (fees and value-added programs.)
From Rep2.5 to Rep2.10 all deleted after analyzing the dimensionality of the construct, because SEM demands unidimentionality of the scales as previously mentioned—see Table 3

* Items measured on a five-point Likert scale, ranging from (1) strongly disagree to (5) strongly agree.

Table 3. Analysis of the dimensionality of reputation.

Reputation	Factor Loadings	
	Factor 1	Factor 2
Rep2.1—intellectual performance (retain/recruit prestigious lecturers/investigators; high levels of scientific publications…)	0.800	
Rep2.2—network performance (attracts first-class students; high employment rate; strong links between the students and industry…)	0.813	
Rep2.3—products (prestigious degrees; competent graduates…)	0.736	
Rep2.4—innovation (innovative methodologies; rapid adaptation to changes; innovative curricula…)	0.685	
Rep2.5—provided services (strong relations with the exterior; specialized tasks; high level of instruction by lecturers and staff…)	0.591	0.449
Rep2.6—leadership (strong and charismatic leaders; organized and competent management; vision for future…)		0.616
Rep2.7—corporate governance (open and transparent management; ethical behavior; fair in transactions with stakeholders…)		0.822
Rep2.8—work environment (equal opportunities; reward systems; care for welfare of staff and students…)		0.821
Rep2.9—citizenship (promotes services to society; supports good causes; acts positively in society; open to the industry and to society…)		0.709
Extraction Method: Principal Component Analysis		

Next, we analyze the measures of the brand relationships construct. We start by analyzing Trust, commitment and Motivation. Then we define guidelines and criteria to assess a model for Brand Relationships.

4.1.1. Trust

This scale was adapted from Morgan and Hunt (1994) and Gurviez and Korchia (2002) and had eight reflexive items. We measured the reliability of the scale defined by the selected items. Cronbach's alpha was 0.898 (higher than the 0.8 suggested by Nunnally (1978)). Dekovic et al. (1991) and Holden et al. (1991) characterized reliabilities of 0.60 or 0.70 as good or adequate. However, Ping (2004) stated that higher reliability measures tend to avoid low average variance extracted (AVE) when running the CFA. Regarding dimensionality, the scale was shown to be unidimensional, with an explained variance of 59.213 percent extracted by that component.

4.1.2. Commitment

This was a new scale proposed for this research and consisted of four reflexive items. Regarding the reliability of the scale, Cronbach's alpha was high (0.819). We then analyzed the dimensionality of the scale and found that the scale was unidimensional, with an explained variance of 64.898 percent by that component.

4.1.3. Motivation

This was also a new scale proposed for this research and consisted of seven reflexive items. Assessing the reliability, the Cronbach's alpha was high (0.886). Analyzing the dimensionality, we found that the scale was unidimensional, with an explained variance of 60.417 percent.

Results regarding the other constructs (external brand identity and brand reputation), the initial measures, the analysis of the dimensionality of reputation, and the final research measures are summarized in Tables 2 and 3. More information regarding the technical procedures can be provided on request.

4.2. Guidelines and Criteria to Assess Model for Brand Relationships

We used the following guidelines:

- CMIN/DF < 2.00 (Byrne 1989, 2010);
- CFI > 0.90 (Bentler 1990; Browne and Cudeck 1993; Hu and Bentler 1999; Marsh et al. 1996);
- RMSEA < 0.08 (Bentler 1990; Browne and Cudeck 1993; Hair et al. 2006; Hu and Bentler 1999; Marsh et al. 1996).
  where CMIN/DF = Chi-square value/degrees of freedom, CFI = comparative fit index, RMSEA = root mean square error of approximation.

Following these guidelines, we applied the first-order measurement model to the brand relationships concept. A summary of the psychometric properties for the first-order constructs is provided in Table 4. Discriminant validity was tested, and after dropping item T4, no problems were reported, as can be seen in Table 5. Taking these results into account, we tested the second-order model for the brand relationships construct. The results showed robustness regarding the selected indicators (see Table 6).

Table 4. Psychometric properties for first-order constructs for brand relationships.

Measured Items	Factor Loadings λ	Σ [a]	Delta [b]	AVE	CR	Cronbach's α
Trust (T)				0.53	0.89	0.885
T1	0.713		0.492			
T2	0.816		0.334			
T3	0.713		0.492			
T5	0.657		0.568			
T6	0.733		0.463			
T7	0.759		0.424			
T8	0.683	5.074	0.534			
Commitment (C)				0.77	0.82	0.819
C1	0.705		0.308			
C2	0.716		0.487			
C3	0.653		0.574			
C4	0.717	2.791	0.316			
Motivation (M)				0.52	0.89	0.886
M1	0.647		0.581			
M2	0.723		0.477			
M3	0.696		0.516			
M4	0.761		0.421			
M5	0.735		0.460			
M6	0.771		0.406			
M7	0.731	5.064	0.466			

[a] Sum of the factor loadings; [b] Delta is a measure that is used to calculate CR (construct reliability), and the formula to obtain it is $1 - \lambda^2$.

Table 5. Construct and discriminant validity for brand relationships.

Construct validity (before drop T4)			
	Motivation	**Trust**	**Commitment**
AVE	0.52	0.51	0.77
CR	0.89	0.89	0.82
Discriminant validity (before drop T4)			
Motivation	0.72		
Trust	0.67	0.72	
Commitment	0.65	0.73	0.88
Construct validity (after drop T4)			
	Motivation	**Trust**	**Commitment**
AVE	0.52	0.53	0.77
CR	0.89	0.89	0.82
Discriminant validity (after drop T4)			
Motivation	0.72		
Trust	0.67	0.73	
Commitment	0.65	0.72	0.88

Notes: Squared root of AVE on the diagonal; correlation estimates below the diagonal.

Table 6. Summary of second-order factors for brand relationships.

Model	χ^2	DF	*p*	CMIN/DF	CFI	RMSEA
Brand relationships (three factors)	219.023	129	0.000	1.698	0.955	0.057 [0.044; 0.070]

The theoretical propositions justifying the second-order model were assumed to directly estimate the empirical. Model; no further tests were used.

We assessed the reliability and validity of the second-order factor for the brand relationships construct. Construct validity is demonstrated by plausible correlations of the second-order construct with first-order indicators, whereas convergent validity can be suggested by an AVE for the second-order construct that is greater than 0.5 (Bagozzi et al. 1991; Ping 2004).

The values of CR = 0.87 and AVE = 0.68 are greater than the recommended values, suggesting higher reliabilities and convergent validity for the second-order construct. In line with this, we can conclude that the results support the first hypothesis (H1) and state that the constructs of trust, commitment, and motivation are a part of a higher dimension construct of brand relationships.

4.3. Model Evaluation

The first analysis of the proposed measurement model suggested that the item Rep2.4 (innovation) be dropped. We re-calculated the reliability and unidimensionality of the scale and found the following for the new three items. The brand reputation scale had a Cronbach's α of 0.777 (higher than the threshold of 0.7 defined by Bland and Altman 1997; DeVellis 2003; Nunnally 1978; Nunnally and Bernstein 1994) and a percentage of explained variance of 68.481 percent, which is highly acceptable. In line with these findings, we re-specified the model and conducted CFA again. The results are summarized in Table 7.

Table 7. Summary of the indices of fit of the measurement model.

Model	χ^2	DF	*p*	CMIN/DF	CFI	RMSEA
Measurement model (Brand relationships; corporate brand identity (external) and reputation)	726.149	503	0.000	1.444	0.944	0.045 [0.038; 0.053]

These fit indices were satisfactory according to the selected guidelines. This means that the second-order construct named brand relationships was related to the second-order corporate brand identity construct (external part) and to the brand construct reputation formed by three measures.

An analysis of all loadings showed that all except one were higher than the threshold of 0.5. The "physical" dimension was the exception; it contributed poorly to the external part of the corporate brand identity construct (0.420 < 0.5). Even so, the model fit was satisfactory. We can conclude that, in contrast to what Kapferer (1986, 2008) suggests, the used sample did not greatly value the physical dimension of corporate brand identity (external part). This is consistent with the sample, which was composed of goal-oriented engineering students. They demonstrated that they assign more value to the dimensions reflecting consumer (loading: 0.784) and relation (loading: 0.750), because they believe that these dimensions are more connected with their lives as students and future professionals. The reflected consumer dimension (the one with the highest loading) was strictly connected with the aspirations of students. However, this finding should be further investigated in other contexts, using other samples. The following standardized residual values also deserve further attention: 2.629 between F4 and Rep2.2; 2.731 between R5 and C3; and 2.716 between R5 and C2.

Rep2.4 (innovation), that was immediately deleted because it had a high standardized residual. Rep2.2 (network performance) also had a relatively high standardized residual, yet we had to maintain one of them because CFA demands at least three items to run an analysis. We considered Rep2.2 more in line with the theoretical background and the factor loadings gave us the same cue (Rep2.2 0.813 vs. Rep2.4 0.685). All the other standardized residuals were below the cut-off point of 2.58, as suggested by Jöreskog and Sörbom (2001). The other items were a part of other second-order constructs, which were previously analyzed and evaluated and revealed as valid (convergent, discriminant, and nomological). Therefore, considering that the mentioned values were far from the cut-off point of 4.0 (Hair et al. 2006) and required no further considerations and that the model fit was satisfactory, we decided to keep these items and test the structural model.

Regarding the modification indices, the one between R5 and C3 had a value of 11.588 (>11). This was expected, given the standardized residual value between both items. However, as mentioned above, the difference was very small, and it was decided to keep both items. All other modification indexes (Mis) had values below 11. No problems regarding multicollinearity were found, and no other indices required our attention; with these findings, we tested the structural model.

4.4. Final Structural Model Estimation and Testing

By developing this causal model, we aimed to demonstrate that universities/institutes of higher education need to invest in and select recognized brands for developing relationships, as well as manage the corporate brand identity in the part that is more exposed to interaction with the public.

In the proposed model, the brand relationships construct was an antecedent of the corporate brand identity construct (external part), and the brand identity (external part) was an antecedent of the brand reputation construct. Corporate brand identity (external part) and reputation were latent variables. Consistent with Hair et al. (2006), Marôco (2010), and James et al. (1982), we added a parsimony fit index (PCFI) to the analysis. We selected PCFI because it represents the result of applying James et al.'s (1982) parsimony adjustment to the CFI:

$$PCFI = CFI \times d/db$$

where d is the degree of freedom for the model being evaluated, and db is the degree of freedom for the baseline model. Values are between [0–1], and better fits are closer to 1. Table 8 summarizes the indices of fit of the structural model:

Table 8. Summary of the indices of fit of the measurement model.

Model	χ^2	DF	p	CMIN/DF	CFI	RMSEA	PCFI
Structural model (Brand relationships; corporate brand identity (external) and reputation)	727.239	504	0.000	1.443	0.944	0.045 [0.038; 0.053]	0.847

As expected, the χ^2 was higher than the one calculated with the measurement model, because a recursive structural model cannot fit better (to have a lower χ^2) than the overall CFA. The difference between both χ^2 was quite small (727.239 − 726.149 = 1.09), demonstrating that the model was strongly suggestive of adequate fit (Hair et al. 2006). The loadings, standardized residuals, and modification indices maintained approximately the same values. Regarding the standardized residuals: 2.704 between F4 and Rep2.2; 2.805 between R5 and C3; and 2.787 between R5 and C2.

The problematic items relating to the modification indices are:

$$-\text{R5 and C3} = 11.752$$

These small differences did not require further analysis, because, at this stage, the focus was on diagnosing the relationships among constructs. A good model fit alone is insufficient to support a structural theory. It is also necessary to examine the individual parameter estimates that represent each specific hypothesis (Hair et al. 2006). Table 9 summarizes the main indicators and conclusions.

Table 9. Structural equation model results.

Relationships between the Constructs			Regression Estimates			Statistics		
			Unstandardized	S.E.	Standardized	C.R.	*p*-Value	Decision
External Corporate Brand ID	<---	Brand relationships	0.652	0.135	0.876	4.830	<0.001	H2 supported
Physical	<---	External Corporate Brand ID	1.000		0.421			
Relation	<---	External Corporate Brand ID	1.419	0.302	0.762	4.695	<0.001	
Reflected consumer	<---	External Corporate Brand ID	1.185	0.242	0.797	4.890	<0.001	
Trust	<---	Brand relationships	1.000		0.801			
Motivation	<---	Brand relationships	0.625	0.093	0.771	6.698	<0.001	
Commitment	<---	Brand relationships	1.031	0.144	0.937	7.156	<0.001	
Reputation	<---	External Corporate Brand ID	1.302	0.260	0.824	5.012	<0.001	H3 supported

Notes: S.E.—standard error; CR—Critical ratio.

Examining the paths among constructs showed that they were all statistically significant in the predicted direction. The path that represented the weight between brand relationships and external corporate brand identity was characterized by βBR.ECBI = 0.652; S.E. = 0.135; βBR.ECBI = 0.876; $p <$ 0.001. This means that the regression weight for brand relationships in the prediction of external corporate brand identity was significantly different from zero at the 0.001 level (two-tailed). The path that represented the weight between external corporate brand identity and reputation was characterized by βECBI.Rep = 1.302; S.E. = 0.260; βECBI.Rep = 0.824; $p <$ 0.001, meaning that the regression weight for external corporate brand identity in the prediction of reputation was significantly different from zero at the 0.001 level (two-tailed).

We analyzed the variance explained estimates for the endogenous constructs in Table 10 and found that the predictors of the physical construct explained 17.7 percent of variance. This means that the error variance of the physical dimension was approximately 82.3 percent of the variance of this dimension itself. As for the other constructs, no problems were found. We can conclude that our model supported both Hypotheses 2 and 3. Therefore, the relationships among brands (brand relationships) influenced external corporate brand identity, and later, the brand reputation.

Table 10. Squared correlations (R^2).

Endogenous Construct	R^2
External Corporate Brand ID	0.768
Physical	0.177
Relation	0.581
Reflected consumer	0.636
Trust	0.641
Motivation	0.595
Commitment	0.878
Reputation	0.680

Because theory has become essential in assessing the validity of a structural model, we examined an equivalent model, with the purpose of testing an alternative theory. For the previous model, we dropped the physical dimension, for comparison purposes. In line with these findings, we accepted the second and third hypotheses and concluded that the brand relationships construct influences the external part of corporate brand identity (H2) and that the brand identity influences brand reputation (H3). Therefore, the management of corporate brand identity depends on the investment and selection of strong relationships with reputed brands, to attract students and increase brand reputation.

5. Discussion and Conclusions

This study presents empirical findings in the field of higher education branding, where studies are mainly limited to business schools (Balmer and Liao 2007; Priporas and Kamenidou 2011; Suomi 2014; Vidaver-Cohen 2007). It contributes to filling a gap in the literature regarding the relationships among brands, as well as their influence on brand identity management and reputation. Students' perceptions of relationships among their higher education institutions indicate that the concept of brand relationships is formed by three dimensions: trust, commitment, and motivation. Trust and commitment are also considered relevant variables in the car industry (Morgan and Hunt 1994), as well as in a branding context: development of a scale to brand confidence (Gurviez and Korchia 2002).

The relationships concept has been traditionally positioned in the theory of networks among companies (Ford et al. 2003; Hakansson and Ford 2002; Hakansson and Snehota 1989, 1995); however, although the literature may acknowledge corporate brand identity's influence on the organizational identity (Hakansson and Snehota 1989, 1995), empirical research on this topic is scarce. An initial step is to further examine the relationships and clients' experience (Keller and Lehmann 2006). This study empirically supports the statements of Hakansson and Snehota (1989, 1995), by connecting brand relationships with the corporate brand identity construct.

This finding empirically proves that brand identity can also be managed by issues considered external to identity.

Previous researchers have established links between corporate brand and reputation (de Chernatony 1999), as well as between brand identity and reputation (de Chernatony and Harris 2000); and between reputation, satisfaction, and loyalty (Helm 2007). But few authors have examined the links among brand relationships and the impact of those relationships on corporate brands' identity or reputation. Our research establishes these missing links by empirically testing this impact. It is important to analyze brands in the services sector, because of its particular characteristics, especially the intangibility of the relationships that allow services to materialize. We particularly selected higher education because of its higher consumer involvement. In the higher education context, students are internal stakeholders and consumers at the same time. It is our own view that students' base part of their appreciation of the university/institution they attend on the relationships it has with other recognized brands, by means of trust, commitment and motivation. Such features improve the visibility of the reflected consumer and their image in society.

We measured the external corporate brand identity in line with the proposed definition of external brand identity by Kapferer (1986, 2008). We concluded quantitatively that the three dimensions: relation, reflected consumer and tangible physical, make sense together and that there is a higher external dimension formed by these three factors. This a very important input for academics and also for brand managers in order to adapt the external dimensions of the corporate brand identity to their publics. Moreover, the use of quantitative methods allowed us to find a higher dimension called corporate brand identity, formed by five of the six factors proposed by Kapferer (1986, 2008): self-image, personality, relation, reflected consumer and tangible physical. The brand identity prism of the mentioned author also includes the culture dimension. We also included it in this research by using the findings revealed by Deshpande et al. (1993). We were able to identify the perceived culture by each student regarding their university/institution. In line with this, we demonstrated that cultures perceived as being performance oriented develop more salient corporate brand identities (measured by the model fit). We divided the sample into two groups in accordance with Deshpande et al. (1993) and verified that the sample compound by the students that perceived their university/institution as being performance oriented revealed better identity salience than the other sample. We consider this of great importance to the management of brand identity in universities/higher education institutions. It reveals the power of the students' perceptions and its influence in the corporate brand identity dimensions. The perceptions regarding brand culture must be managed by the brand managers so as to create the desired perceptions in the students making the desired corporate brand identity coincident with the existing one. This finding also reveals the influence of the culture dimension in the other dimensions of the corporate brand identity, something that we have not found in previous studies.

This research also revealed the importance of joining qualitative and quantitative methodologies and proved that the latter is also applicable to a field of studies where quantitative studies are scarce.

As far as our knowledge is concerned, it is the first time that the brand identity prism developed by Kapferer (1986, 2008) is measured in the mentioned context.

6. Limitations of the Research, Future Directions and Contributions

Even though the sample of engineering students was adequate for the purposes of this research, it would be extremely useful to compare these findings with those of other samples, consisting of students with other characteristics. Such studies would confirm our findings and improve generalizability. A new perspective of the physical dimension in the brand identity prism was revealed. We named it "Intangible Physical". This dimension is present in the physical dimension defined by Jean Noel Kapferer (1986, 2008). Yet, taking in account the used sample, the research revealed that this dimension, although valid and reliable, did not show enough discriminant validity to be considered a single differentiated factor. Therefore, we consider that other samples with different characteristics should be studied. Furthermore, other services with high levels of consumer involvement should be tested for generalization purposes, such as insurance or medical services.

Regarding the contributions to the literature and to brand management, the conclusions of this research highlight the importance of designing, choosing, and investing in relationships with brands. These relationships should be coherent with the desired brand identity and reputation, in such a way that they cocreate value for stakeholders. The brand managers of higher education corporate brands should pay more attention to the process of engaging with other brands that are perceived by students and stakeholders as providing value to their institution.

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