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Management design as a strategic lever to add value to corporate reputation competitiveness in higher education institutions

Management
design as a
strategic lever

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Abstract

Purpose – The purpose of this paper is to aid the convergence of design and management as a strategic lever and innovative tool to improve corporate reputation in higher education institutions (HEIs), particularly in the Polytechnic Institute of Bragança, Portugal (IPB).

Design/methodology/approach – SWOT analysis is used to identify strengths and weaknesses in the context of an organization's internal competencies (identity) and opportunities and threats in an analysis of the organization's external competitive context (image). Quantitative analysis was used based on questionnaires conducted with IPB community to analyse if differences exist between identity (staff) and image (students) and where there are design structures (website, visual identity, advertising and environment). Corporate character scale developed by Davies *et al.* (2003, 2004) was used.

Findings – With the SWOT analysis, it is possible to outline IPB performance strategies that meet a positive reputation. A positive corporate reputation was found in IPB with the study of corporate character scale. It has been realized where there are differences from the point of view of identity and image, and thus, it is possible to indicate ideas of improvement to increase the competitiveness of HEIs.

Research limitations/implications – The study is restricted to five schools of IPB. It would also be pertinent to broaden the scope of the stakeholders, encompassing the external community of the IPB that is extending the study to the external public, such as parents, companies, suppliers and secondary students.

Practical implications – HEI competitiveness implies student recruitment and public policies. A positive reputation implies a positive brand image. Design competencies of the public higher education sector can go much further acting at the strategic level, establishing its directives of action in the markets where it operates to reflect its corporate reputation in a positive way in the mind of the consumer. Intangible assets such as identity, image and corporate reputation, appear as very valuable elements, presenting an increasing importance in the management of universities that entered a market context where sustainability requires the adoption of more entrepreneurial management guidelines.

Originality value – The paper is useful for the professionals and academics in perceiving the importance of use management and strategic tools to identify HEI communication and reputation difficulties for a



thorough design thinking that delineates solutions that leverage the competitiveness of service organizations such as HEIs.

Keywords Design management, HEI, Strategy, Corporate reputation, Polytechnic Institute of Bragança

Paper type Research paper

1. Introduction

This paper focuses on the scope of the design management as a differentiating agent in the use of resources of the design and its interaction with the strategies and goals of a service sector, particularly in higher education institutions (HEIs).

The growth of HEI from a more “market” perspective has changed the communication paradigm of both Portuguese and international teaching institutions, highlighting the role of identity and image in the management of organizations. Factors such as the development of information and communication technologies, globalization of economies and emergence of the so-called “knowledge society” have placed new demands on HEIs ([Ruão and Carrillo, 2005](#)).

Currently, the reputation of HEIs represents an intangible capital and a valuable asset and is recognized as playing an important role in differentiation and competitive advantage against competition. This competitive environment together with limitations of public resources for higher education make the image an essential part of the strategic management of HEIs ([Luque-Martínez and Del Barrio-García, 2009](#)).

[Ruão and Carrillo \(2005\)](#) point out that the promotion of positive associations in the minds of the HEI target audiences is fundamental to building good relationships. In this sense, the image management of HEIs falls within the field of design management. In this context of change, an awareness of the importance of design, its management and its use as a strategic tool is an essential condition in service organizations.

[Bitner and Brown \(2008\)](#) report that the value of service design used as a strategic resource in organizations still needs to be extensively studied. This study aims to demonstrate that managing a design puts the needs of the user first and that both higher education organizations and their target public can benefit from the use of strategically designed services ([Moritz, 2005](#)).

Design management is presented here as planning the implementation of design in organizations at the level of decision-making to facilitate the design actions in the supply of their needs and in the recognition of opportunities related to the design activity ([Centro Português de Design, 1997](#); [Mozota, 2003](#)).

Understanding how management and design converge to create value in an organization involves identifying design opportunities through the use of management tools. In this sense, we used SWOT analysis to understand how the strategic integration of design in HEIs, specifically in this study, at the Polytechnic Institute of Bragança (IPB), located in the north of Portugal, can create competitive advantages through differentiation ([Best, 2010](#)). The SWOT analysis is used to identify strengths and weaknesses in the context of an organization’s internal competencies (identity) and opportunities and threats in the analysis of an organization’s external competitive context (image). The internal and external SWOT analyses consolidate the company’s situation in its context and determines the key factors for success to be considered in design management ([Mozota, 2003](#)).

Evolution brings new concepts and new realities. Companies undergo the remodelling process and seek to adapt to a new way of managing and doing business. In this logic, the question that arises is what will make the competitive difference in HEI and what will be the differentiating factor in relation to organizations in the same sector.

This paper intends to show that one of the ways may be to manage design by developing strategies to add value to services, enhancing their corporate reputation (identity and image). Corporate character scale developed by Davies *et al.* (2003, 2004) was used.

The ability of design in the use of management tools (SWOT analysis and corporate character scale) allows us to quantify and identify issues related to intangible assets such as corporate reputation (identity and image). And the use of design thinking in business allows us to point solutions to these identified problems.

Design competencies of the public higher education sector can go much further acting at the strategic level. It is in this strategical level that a design implementation programme is created, with the top management of the organization establishing its directives of action in the markets where it operates to reflect its corporate reputation in a positive way in the mind of the consumer.

To answer the main objective, this research is divided into two parts: the first part being based theoretically on the concepts of design management and corporate reputation, that is, identity as a design value and coordinated image programmes in HEIs. It includes identifying the main objective and study hypothesis of the research. Understanding through the use of management tools if the perception of identity (internal perspective) corresponds to the image (external perspective), according to four design structures defined as website, visual identity, advertising and environment. Internal perspective includes the point of view of the staff (directors, lecturers and employees) and the external perspective refers to the vision of the students. The process of design management was applied to HEIs intending to demonstrate how to leverage their intangible aspects (identity, image and reputation), using a strategic and integrated design to guide organizations so that its corporate reputation is perceived positively and competitively.

In the second part, the purpose of the study, methodology and results are defined. A brief characterization of the sample has been attempted and a SWOT analysis has been conducted to identify the corporate design needs of the IPB. The following describes the analysis of the research results obtained through a questionnaire of corporate reputation applied to the staff and student groups, according to the aforementioned four design structures (website, visual identity, advertising and environment). The study aims to ascertain if the identity defined by the IPB (such as the organization sees itself) is in accordance with the image perceived by its stakeholders (as the external public sees the organization), to be able to draw conclusions and outline competitive strategies.

2. Literature review

2.1 Management design in the organization

Using design as only an aesthetic tool is common in organizations; this is because of the fact that its importance for competitiveness is not valued and included in the strategic purposes of the organization. Design is an important activity that can support organizations by setting goals and creating strategies in the market in which they act, creating differentiation with competitors.

Design management integrates the operational functions of the design developed in all sectors of the organization, aiming at achieving the objectives outlined and enabling the perception of a positive image. It coordinates the products and their communication, environments and services. Design management encompasses the ongoing processes, business decisions and strategies that enable innovation and create brands that provide organizational success. On a deeper level, design management seeks to link design, innovation, technology, management and customers to provide a competitive advantage across the triple bottom line such as economic, social/cultural and environmental factors. It

is the art and science of empowering design to enhance collaboration and synergy between “design” and “business” to improve design effectiveness (DMI, 2014).

The design, besides focusing on the aesthetic or physical features of the products, creates innovations in experiences offered to consumers that have often not been experienced before. Innovation is the key factor for success in a competitive environment and it is through innovation that one can create more competitive products/services (Kelley and Littman, 2001).

There are several ways to adopt design management, and this does not always happen in a structured way or with real participation in an organization’s strategic activities and project control. This often causes a disparity between the image that the organization conveys and the one it intends to convey (Wolf, 1998).

Mozota (2003) seeks to build a convergent model on the development of design management, noting that it has two distinct approaches, such as strategic and management, in companies. The strategic approach has to do with the design perception as a new paradigm in which its methods and tools are used to increase the efficiency of the management as a whole and of the management design in particular. Understanding design in this way requires the understanding of design as a philosophy, its way of seeing the world as an increment for management and the intention of the organization with the use of design. The management design approach refers to the use of this paradigm as a tool to increase the use of products and services by accommodating administrative and managerial concepts regarding design, which are chosen to make the design of the organization more efficient.

Design, to integrate into service organizations, adopts different paths, intervening every day in the problems that derive from the strategy of the organization, the product or the identity and the communication. The breadth of the domain of design application and its integration into organizations should not hide the fact that there are common structures through different perspectives.

Brown (2008) says that for service organizations to be successful, differentiating and with competitive advantage, it is essential to have innovation, imagination and creativity. Design thinking can transform the way you develop products, services and processes and even business strategies. It is a multidisciplinary process that integrates several fields of knowledge and management, marketing, research and design. It creates a unique connection of the organization with the client.

Gorb (1990) is responsible for the creation of the Department of Design Management at London Business School, an organizational structure groups design features into four structures such as product design, environment design, information design and corporate identity design. Management design uses these resources to achieve the strategic objectives defined by organizations, and these four areas describe the zones of influence of design within the organization.

The use of design management to strategically evaluate the corporate reputation of HEIs intends to demonstrate in practice how to enhance the intangible aspects of service organizations.

It should be noted that corporate reputation study alone does not identify the actions that should be implemented to improve the brand, but it supports management design by identifying the areas in which these improvements should be implemented.

Design management, with the use of strategic tools such as SWOT analysis, allows us to guide the organization so that its corporate reputation is perceived in a positive way.

It is difficult to break down existing barriers in the public sector, such as bureaucracy, attachment to old work methods and traditional forms of relationships. Through service

design and through innovation and strategy, organizations can achieve their goals more effectively and competitively.

2.2 Corporate reputation concept

Intangible assets such as identity, image and corporate reputation appear as very valuable elements presenting an increasing importance in the management of universities. HEIs have entered a market context where sustainability requires the adoption of more entrepreneurial management guidelines (Ruão and Carrillo, 2005).

A study of organizational identity implies the evocation of two schools of thought: the visual school and the strategic school. The visual school privileges the physical manifestations of identity, which are expressed through iconic visual elements, whose purpose is the identification and distinction of the organization in its environment. The strategic school is dedicated to the analysis of cultural or psychological elements that integrate the vision, mission and philosophy of the organization. In this sense, the visual identity must be based on the personality, culture, behaviour and communication of the organization (Balmer, 2008).

Corporate reputation implies the point of view of both the staff (identity) and the clients (image). Corporate reputation is more than the image that an organization conveys. It is the perception that the various audiences with whom a company interacts have about it over time.

Reputation is difficult to control, but it is important and crucial for the competitiveness of companies that manage their reputation to be more coherent in their actions and more dialogue with their public.

Company size, structures, culture, standards and credibility are both tangible and intangible influencers of perception. This idea lacks a comparison between identity and image. Assuming that the image (external) is linked to the identity (internal), one must consider that reputation management and control are performed from within the organization (Davies *et al.*, 2003, 2004).

The visual identity not only translates to the organization name, logotype, colours and typography but also includes tangible aspects such as the environment (architecture and decoration), uniform, packaging and others.

Corporate image can be described as a holistic and lively impression that a particular group has about the organization. It is the immediate mental photograph that appears in the head of the audiences when an organization is mentioned (Alvesson, 1990). It is a spontaneous interpretation made by a society about the organization. To understand the concept of corporate image, it is necessary to look beyond a graphic component and understand its significance as a character assignment of a collective representation of an organization.

Fombrun (1996) refers that term reputation serves to characterize the distribution of opinions (the open expression of the collective image) about a person or an entity, by an interest group and that is constituted over time. It is the collective judgement of the actions of the organization and its performance. Thus, both concept of image and reputation portray the phenomenon of mental representation manifested by the identity of organizations. According to Thomaz and Brito (2010), corporate reputation is a global assessment that stakeholders make about an organization over time. Other authors define that reputation consists of a set of beliefs, associated with a characteristic of the organization that are somewhat generalized and diffused in a certain way (Barron and Rolfe, 2011).

Balmer and Wilson (cited by Fascioni, 2003) state that the primary goal of an organization to manage corporate identity is to ensure a competitive advantage by its

individual characteristics. The line of reasoning is simple: efficient identity management results in the acquisition of a favourable image and, after a certain time, a desirable reputation. This factor encourages an organization's relationship with its stakeholders, employees, partners, suppliers and customers in a consistent and reliable manner, full of credibility.

2.3 Corporate reputation in HEIs

In a service organization where the perspectives of employees and customers are seen as interdependent, how employees and customers perceive an organization's reputation influences their behaviour towards them.

Any gap between internal and external perceptions is especially important in a service business, where the interaction between employees and customers is critical. Any gaps between identity and image should be a source of concern, and their measurement should be a determinant to minimize them (Roper and Davies, 2010).

Davies *et al.* (2003, 2004) report that reputation affects business performance, and in this case, it is necessary to know how to develop and defend it.

For the current study, it was necessary to choose a scale that would allow the evaluation of the IPB community's institutional reputation. It is intended to evaluate the HEIs from an internal perspective, consisting of the staff (directors, lecturers and employees), and from an external perspective (students). The purpose of the study is to perceive a different vision of the identity and the image, that is, if the values defined by the organization's members (identity) correspond with the values desired by the brand (image).

Considering the prominence that has been deserved by the main academic journals specialized, the corporate character scale developed by Davies *et al.* (2003, 2004) was used.

The scale proposes a projective technique that asks respondents to imagine that the enterprise comes to life as a person (Davies *et al.*, 2003, 2004). This corporate personality scale has 7 dimensions and 14 facets, evaluated by 49 items that reflect traits of the human personality and that represent words the population uses to describe a brand.

In Table I, it can be verified how the 7 dimensions are constituted, subdivided into 14 facets, where the 49 items are distributed.

The HEIs of the twenty-first century must carefully manage the personality of their brand to reflect their corporate values. Brand personality traits, as seen by consumers and the general public, should be aligned with internal values to be more successful against competitors (Keller and Richey, 2006).

It should be noted that corporate personality does not identify the actions that should be implemented to improve the brand, but it supports design management by identifying the areas in which these improvements should be implemented.

2.4. Research hypotheses

The main objective of this research is to understand through management tools if the perception of identity (internal perspective) corresponds to the image (external perspective), according to four design structures defined as website, visual identity, advertising and environment. The internal perspective corresponds to the vision of the directors, lecturers and employees (staff), and the external perspective corresponds to the vision of the students.

To complement the study and as a specific objective, the following was established:

Specific objective: It is possible to identify differences in corporate reputation perceived by the IPB community (directors, lecturers, employees and students) regarding the four design structures (website, visual identity, advertising and environment).

Table I.
The corporate
character scale

Dimensions	Facet	Items
Agreeableness	Warmth	Friendly, pleasant, open, straightforward
	Empathy	Concerned, reassuring, supportive, agreeable
	Integrity	Honest, sincere, trustworthy, socially responsible
Enterprise	Modernity	Cool, trendy, young
	Adventure	Imaginative, up-to-date, exciting, innovative
	Boldness	Extrovert, daring
Competence	Conscientiousness	Reliable, secure, hardworking
	Drive	Ambitious, achievement oriented, leading
	Technocracy	Technical, corporate
Chic	Elegance	Charming, stylish, elegant
	Prestige	Prestigious, exclusive, refined
	Snobbery	Snobby, elitist
Ruthlessness	Egotism	Arrogant, aggressive, selfish
	Dominance	Inward-looking, authoritarian, controlling
Informality		Casual, simple, easy-going
Machismo		Masculine, tough, rugged

Source: Davies *et al.* (2004, p. 136)

To answer to the main objective of the study, the following hypotheses were considered:

RH1: There are differences between the corporate reputation of the IPB (staff and students) regarding the four attributes of the image, per school.

RH2: There are differences between the identity and the image perceived by the IPB community according to the seven dimensions of corporate character scale.

3. Methodology

3.1 Data analysis

The data for this study were collected by an online questionnaire. The open-source platform “LimeSurvey” was used, which comprises issues of closed responses; it sent an invitation via email requesting collaboration to the IPB community. The IPB community constitutes five schools, namely, The School of Agriculture (ESA); School of Public Management, Communication and Tourism (EsACT); School of Education (ESE); School of Health (ESSa); and School of Technology and Management (ESTiG). The questionnaire was applied between May and July of 2013/2014 academic year.

The instrument used was divided into five sections, to analyse the four defined image attributes (website, visual identity, advertising and environment). Section I – information to be collected on target individuals, such as gender, age and school. Section II – question that proposes to the respondents to identify the personality of the image attribute, website, of the IPB. Section III – proposes to the respondents to identify the personality of the image attribute, visual identity. Section IV – proposes to the respondents to identify the personality of the image attribute, advertising. Section V – proposes to the respondents to identify the personality of the image attribute, environment.

The respondents were asked to characterize the 49 attributes as if these were a person through regarding the Davies *et al.* (2003, 2004) corporate character scale. Each item was

measured using a five-point Likert scale with the following options: “1 – Strongly Disagree”, “2 – Disagree”, “3 – Neutral”, “4 – Agree” and “5 – Strongly Agree”.

For the analysis of corporate reputation of the IPB, according to its four image attributes (website, visual identity, advertising and environment), reliability values were calculated for 7 dimensions, 14 facets and 49 items of the corporate character scale (Table II).

Table II presents the reliability values that guarantee the adequacy of the internal consistency of the scale, once the values achieved oscillate between 0.759 and 0.968, from reasonable to very good reliability (Malhotra and Birks, 2006).

To analyse sample profile and to answer the specific objective, descriptive analysis, presented in graphs and tables, measures of central tendency (mean) and dispersion (standard deviation) will be used.

To respond to the research hypotheses, an inferential analysis was performed. The Student *t*-test was used to analyse whether there are differences between means for two independent samples. For the application of this test, there is a need one sample size greater or equal to 30 elements, for each independent sample. For the application of this test, one sample size greater or equal to 30 elements is needed for each independent sample. The normal distribution must be followed, resorting to the Kolmogorov–Smirnov or Shapiro–Wilk test, and the variances must be homogeneous (using Levene test). When not validated the application of the assumptions of the parametric tests and for the two independent samples, a nonparametric test was applied, the Mann–Whitney test. A significance level of 5 per cent will be considered for all the inferential analyses.

4. Research results’ presentation

4.1 Sample profile

The objective of this paper is to evaluate if there are differences between the identity and image of the IPB, through internal perception (directors, lecturers and employees) and external perception (students). The Community of the Polytechnic Institute of Bragança was defined as the population under study.

In Table III, for the 2013/2014 academic year, it can be observed that the population consists of 6,958 individuals, of whom 23 are directors, 335 are lecturers, 195 are employees

Table II.
Analysis of the
reliability of the
items, facets and
dimensions of the
corporate character
scale of IPB

	Website	Cronbach’s alpha Visual identity	Advertising	Environment
49 items	0.935	0.952	0.961	0.968
14 facets	0.886	0.912	0.924	0.937
7 dimensions	0.759	0.803	0.823	0.845

Table III.
Population and
sample for 2013/2014
academic year

IPB community	Population		Sample	
	N	(%)	n	(%)
Directors	23	0.3	13	3.3
Lecturers	335	4.8	112	28.5
Employees	195	2.8	32	8.1
Students	6,405	92.1	236	60.1
Total	6,958	100	393	100

and 6,405 are students. In total, 393 questionnaires were validated, with an assumed margin of error of 4.8 per cent and an assumed significance level of 5 per cent.

In Table IV, the demographic and professional profile is characterized. It can be observed that, in relation to the gender of the individuals interviewed, the sample is made up of 63.1 per cent female students and 36.9 per cent male students. The directors' sample is made up of 30.8 per cent female and 69.2 per cent male. The lecturers' sample is made up of 53.6 per cent women and 46.4 per cent men. In terms of employees, 40.6 per cent were women and 59.4 per cent were men.

Analysing the variable of the age range for students, there is a concentration in the ages between 19 and 25 years of 68.2 per cent. In the group of directors, the age group reaches equal values, from 46.2 per cent for those who are between 40 and 46 years and those who are older than or equal to 47 years. The age group between 40 and 46 years has values of 41.1 per cent in the lecturers' group, and in the group of employees, the concentration of the ages is in the range of 33 and 39 years with 40.6 per cent.

Regarding the schools' variable (Table IV), it is verified that the largest number of answers is equally concentrated in all groups of respondents in the ESTiG, obtaining 23.1 per cent of the directors' answers, 39.8 per cent of the students' answers, 35.7 per cent of lecturers' answers and 40.6 per cent of employees. No response was obtained from the ESA directors' group, in contrast to 38.5 per cent of responses from the IPB directors' group, 15.4 per cent from the EsACT directors' group, 7.7 per cent from the ESE directors' group and 15.4 per cent from the ESSa directors' group. In the survey, students answered 12.3 per cent of the ESA, 12.7 per cent of EsACT, 18.6 per cent of ESE and 16.5 per cent of ESSa. Lecturers obtained 3.6 per cent of answers pertaining to IPB, 14.3 per cent for ESA, 17 per cent for EsACT and ESE and 12.5 per cent for ESSa. Further, 0 per cent of answers from ESSa's

	Directors		Lecturers		Employees		Students	
	<i>n</i>	(%)	<i>n</i>	(%)	<i>n</i>	(%)	<i>n</i>	(%)
<i>Gender</i>	13	100.0	112	100.0	32	100.0	236	100.0
Female	4	30.8	60	53.6	13	40.6	149	63.1
Male	9	69.2	52	46.4	19	59.4	87	36.9
<i>Age group</i>	13	100.0	112	100.0	32	100.0	236	100.0
≤ 18	0	0.0	0	0.0	0	0.0	6	2.5
19-25	0	0.0	0	0.0	0	0.0	161	68.2
26-32	0	0.0	5	4.5	1	3.1	37	15.7
33-39	1	7.7	36	32.1	13	40.6	17	7.2
40-46	6	46.2	46	41.1	7	21.9	9	3.8
≥47	6	46.2	25	22.3	11	34.4	6	2.5
<i>Institution schools</i>	13	100.0	112	100.0	32	100.0	236	100.0
IPB	5	38.5	4	3.6	8	25.0	0	0.0
ESA	0	0.0	16	14.3	6	18.8	29	12.3
EsACT	2	15.4	19	17.0	2	6.3	30	12.7
ESE	1	7.7	19	17.0	3	9.4	44	18.6
ESSa	2	15.4	14	12.5	0	0.0	39	16.5
ESTiG	3	23.1	40	35.7	13	40.6	94	39.8

Notes: IPB – Polytechnic Institute of Bragança; ESA – School of Agriculture; EsACT – School of Public Management, Communication and Tourism; ESE – School of Education; ESSa – School of Health; ESTiG – School of Technology and Management

Table IV.
Demographic and
professional profile
of the sample (*n* =
393)

group of employees stood out, with 25 per cent of answers from IPB's group of employees, 18.8 per cent of answers from ESA's group of employees, 6.3 per cent of answers from ESACT's group of employees and 9.4 per cent of answers from ESE's group of employees.

4.2. Polytechnic Institute of Bragança: Strengths Weaknesses Opportunities Threats analysis

Understanding how management and design converge to create value in an organization involves identifying design opportunities through the use of management tools. For this, SWOT analysis will be used to understand how the strategic integration of design in the IPB can create competitive advantages through differentiation (Best, 2010). The internal and external SWOT analyses consolidate the organization's situation in its context and determines the key factors for success to be considered in the management design (Mozota, 2003).

The following SWOT analysis was based on an interview with the presidency of the IPB, an analysis of the respective Strategic Plan 2014-2018 and other sectoral publications such as the *SWOT Analysis of Portuguese Higher Education*, with the objective of collecting data that prove the existence of research opportunities within the scope of management design in the institute's services. It is important insofar as managers can predict future developments of greater or lesser impact on the organization. Thus, the SWOT analysis of the IPB was analysed as follows:

(1) Strengths:

- Higher education recognized internationally, within the European system of recognition of qualifications.
- Territorial position in relation with Spain.
- Leadership in the context of Polytechnic Higher Education and seventh best institution of higher education in Portugal.
- The only public institution of higher education in the district of Bragança.
- More than half of IPB's faculty members are PhDs.
- Positive image of the IPB in the region and national recognition.
- Positive Corporate Reputation to the IPB community (people).
- Existence of a permanent council, as a central decision-making structure, integrating elements of all organizational units.
- Visual identity common to all schools.
- The five schools follow the same strategic vision of IPB.
- Support to the student in the ambit of entrepreneurship and employability, with the existence of an institutional incubator.
- Presence of a Scientific Council of the Institution for coordinated management of training offer.
- Presence of the Office of Planning and Quality Management that allows effective improvement of the quality of services.
- Each school, independently, has academic, scientific and operational decision structures.
- Provision of higher education with a very good price/quality ratio, with the HEI being with the lowest national study fees.

- Satisfaction surveys for Erasmus and international students (GRI [International Relations Office]).
 - Disclosure of the IPB in international Web platforms such as “StudyPortals” and “MasterStudies”.
 - Creation of a religious space to include all beliefs as opposed to their exclusion.
 - Scientific quality with great national visibility with the results obtained in the qualification of the faculty, research and internationalization.
 - Cooperation between the IPB and HEI of Portuguese-speaking countries (e.g. research, recognition of degrees, etc.).
 - E-learning platform, IPBvirtual, communication and content distribution in an online environment available anytime, anywhere.
 - Offer of initiatives developed in the IPB for secondary schools and its public as promotion of the Institute’s courses.
- (2) Weaknesses:
- Reduced number of students in areas and study cycles considered as strategic intervention of the IPB.
 - Absence of intermediate coordinators capable of leading projects and making decisions.
 - Poor motivation of the internal community of the IPB, as not all are reflected in the activities of the institution.
 - Financial embarrassment conditioning the recognition and motivation of employees.
 - Lack of time of the leaders to innovate, not having a design culture to emphasize the idea of multidisciplinary and to think about the coordination of tasks, process and sequence of these decisions.
 - Lack of systematization of IPB news.
 - Absence of audits and evaluations of the results of design projects.
 - Institutional campaign changes every two years. It is neither repeated nor systematized.
 - Inexistence of design policies implemented in the IPB.
 - Absence of marketing, communication and design departments to identify student needs and act strategically at national and international levels.
 - Design is present at the institution at only the operational level, not present at a tactical and strategic level.
 - The IPB is unaware of the strategic competence of design and the power of integrated communication so that the current, future and potential students are not confused by the avalanche of different images.
 - Infrastructure with some restrictions to public with disabilities.
 - There are no studies to understand how the IPB is seen, in general, by its internal community and the external community (surrounding region).
 - Lack of signage outside Campus IPB.
 - No map of support to the new student/visitor for orientation in the campus and its respective school.

- Difficulty in fostering creativity and entrepreneurship through teaching.
- Lack of evaluation/analysis of the codes of conduct of markets where it can act.
- (3) Opportunities:
 - Consciousness of the HEI, namely, the IPB, for the creation of an identity management plan (coordinated image).
 - Introduction of design as a strategic discipline at the organizational level.
 - Understand how design can contribute to sustained development in the IPB.
 - Integration of design, as a management tool, to promote the creation of a sustained programme of identity and image.
 - Clarify the design culture and its intervention in the institution as a factor of innovation.
 - Integrate and promote management design contributing to the recognition, mission and values of IPB.
 - Disseminate integrated communication and design as unique opportunities for the competitiveness of IPB and its respective economic growth, modernization and humanization of HEI.
 - Emphasize the idea that service companies that use features like design and marketing for a communication strategy have a higher reputation in the market.
 - Promotion of the IPB in international fairs offering the possibility of studying abroad with the best quality/price of the national market.
 - Offer of lifelong learning, through non-degree modules.
 - Establish ECTS credits award criteria for extracurricular activities (e.g. volunteering).
 - Creation and promotion of b-Learning platforms promoting distance teaching and learning in on-line face-to-face lessons.
 - New lifestyles seek to offer new services (e.g. growth of environmental values).
 - Surrounding region that offers high environmental values, good quality of life at low cost.
 - To develop collaborative work among HEIs to contribute to the network's self-regulation, identifying existing forces, opportunities and alliances at the level of research and cooperation projects, offering training, organizing curricula and contracting.
 - Strong relationship with the three intermunicipal communities (CIM of Terras de Trás-os-Montes, Douro and Alto Tâmega) of the region and other public and business entities of the region.
 - New community framework program (Horizon 2020) focusing on innovation, transfer of technology and the development of regional strategies for smart specialization (with an impact on the North 2020 initiative).
 - Integration in a cross-border region near HEI in the Castilla y León (Spain) region and the framework of RESOE (Macro region of South West Europe: Northern Portugal, Galicia and Castilla y León).
 - Lever of local and regional development.
 - Fostering the links to old students.

- Reinforce courses and curricular units taught in English.
 - Customization that is the search for personalized services and/or products.
- (4) Threats
- Marketing and strategic management of competing HEI in the national and international markets.
 - Decreased trend of public HEI funding.
 - Lack of a legislative framework (higher education and science and technology) to promote applied research and technology transfer in the polytechnic subsystem under conditions of equity in obtaining human resources and funding for its development.
 - Social undervaluation of the importance of polytechnic subsystem in relation to the university.
 - Too high importance given to the international rankings.
 - Devaluation of the higher education diploma with a negative perception of society and low employability of graduates.
 - Reduction in the number of students completing secondary education.
 - Financial crisis is reflected in the financial deficiency of the families and in the difficulty of financing the students.

With the SWOT analysis developed for the IPB it is possible to verify that its strengths are focussed on internationalization, with the IPB standing out in terms of leadership of the Portuguese Polytechnics Institutes, and the IPB being the only Institution of Higher Education in the district of Bragança. Although located in the interior of the country, IPB has the advantage of offering a service with very good price/quality of life that is similar to the level of courses and quality of life of institutes situated in the city.

Despite a strategy focussed on internationalization, the IPB presents shortcomings in internal communication at the level of employees and in the sharing of information among organizational units, presenting a lack of systematization of IPB news and thus reinforcing the institute's brand not only in the internal community but also in the external community. It is important to emphasize the difficulty in innovating, not having a design culture, at a strategic level, to think about the coordination of tasks, process and sequence of these decisions.

The absence of a communication department, adding marketing and design values, does not allow the institution to identify current and potential future student and partnership needs to be able to act strategically in the national and international markets.

Lack of studies that perceive how the IPB is seen by its internal and external community prevents the creation of innovative and efficient communication policies.

At the level of the macro environment of the organization, the main threats to be highlighted are the resources of the HEIs competing for the use of marketing and strategic management in the national and international market and the social undervaluation of the importance of polytechnic teaching in relation to university students. In addition to the crisis in the country and the departure of qualified professionals abroad, as well as the low employability of graduates, a mentality of devaluing higher education diploma is also present.

As opportunities, it is possible to emphasize the greater awareness of HEIs in the creation of an identity management plan, realizing that disciplines such as design and marketing are essential for an organization's sustained development and thus having the ability to

innovate and spread integrated communication as a unique opportunity for the economic growth, modernization and humanization of IPB. With the evolution of the society and technologies, new opportunities such as the possibility of offering lifelong learning courses or the attribution of ECTS credits in extracurricular activities arise. New lifestyles in the search of better quality of life call for new services, such as the growth of environmental values, in which the IPB stands out because of its location. The strong tendency on the part of the consumer in the search for customization can be applied as something innovative also in the field of education.

4.3 Polytechnic Institute of Bragança corporate reputation: directors, lecturers, employees and students

The reputation perceived by the IPB community regarding its attributes (website, visual identity, advertising and environment) through the dimensions and facets of the corporate character scale should be compared with the different internal and external perspectives. Reputation, according to Davies and Miles (1998), should be measured by considering the internal and external perspectives.

In this sense, to answer the specific objective, “It is possible to identify differences in Corporate Reputation perceived by the IPB Community in relation to the four attributes of the image (website, visual identity, advertising and environment)”, a descriptive analysis of the dimensions between the IPB community and each of the attributes of the image was carried out.

Figures 1–4 illustrate the main differences/associations made by the directors, lecturers, employees and students regarding the IPB website, visual identity, advertising and environment, represented by the means of the seven dimensions of the corporate character scale. The Likert scale used to represent the information in the figures and to better understanding the differences/associations evidence by directors, lecturers, employees and students oscillates between 2, 5 and 4 points, for each dimension.

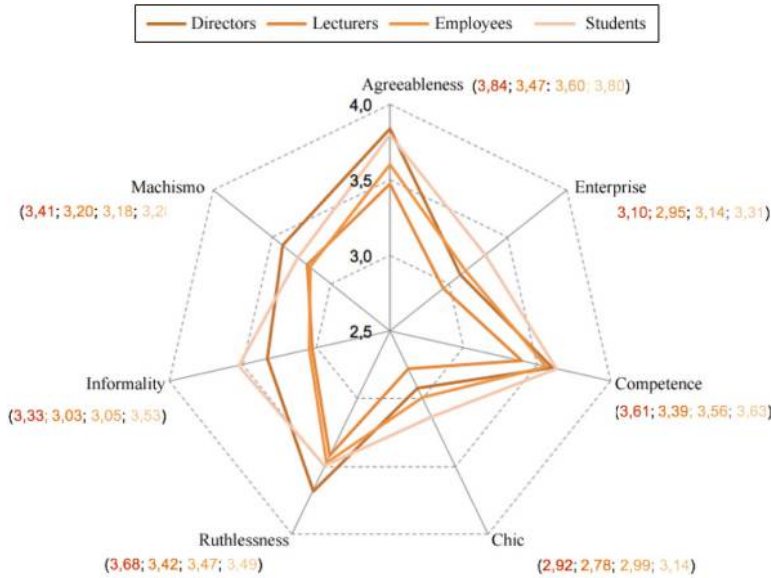


Figure 1.
Corporate reputation
of the website
according to
directors', lecturers',
employees' and
students' perception;
means of the seven
dimensions of the
corporate scale

Analysing Figure 1, the dimensions agreeableness, competence, ruthlessness, informality and machismo have positive and significant values, greater than three points, from the point of view of both the staff (directors, lecturers and employees) and students regarding the institutional website. In the dimension enterprise, lecturers are the only ones who assign negative values, less than three, to the website. This is because the website, in its understanding, is not seen as innovative and exciting (Davies *et al.*, 2004). For the dimension Chic, only students have a positive perception regarding the website. For the directors, lecturers and employees, the site lacks sophistication and prestige (Davies *et al.*, 2004).

Figure 2 shows that all dimensions, in the perception of the visual identity of the IPB community, have positive and significant values, greater than three points. The reputation of institutional visual identity is positive in both internal and external perception. The agreeableness dimension obtains higher averages from the entire IPB community. This dimension emphasizes social responsibility which helps to build an intangible asset such as reputation. The corporate character scale is associated with items such as sincere, trustworthy or honest. Trust is the keyword of this dimension (Davies *et al.*, 2004).

Figure 3 shows the associations made by the IPB community with the dimensions of the corporate character scale in relation to the advertising attribute. The agreeableness, enterprise, competence, ruthlessness, informality and machismo dimensions present positive and significant values, exceeding three points. The chic dimension, from the point of view of lecturers, presents a very insignificant value, indicating that they may consider institutional advertising unsophisticated or that it does not adequately represent the prestige of the IPB (Davies *et al.*, 2004). The agreeableness dimension gets, in the advertising attribute, higher averages from the entire IPB community.

The most differences in the perception of the IPB community are manifested in the environment attribute as shown in Figure 4. The agreeableness, ruthlessness and machismo dimensions present a consensus on the part of the IPB Community, presenting positive and significant values, superior to 3 points, considering that the environment is

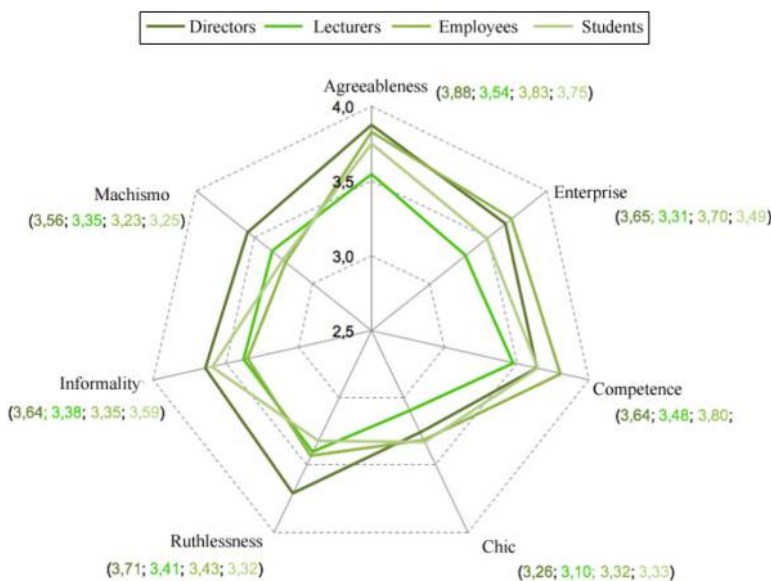


Figure 2.
Corporate reputation
of visual identity
according to
directors', lecturers',
employees' and
students' perception;
means of the seven
dimensions of the
corporate character
scale

Figure 3.
Corporate reputation
of advertising
according to
directors', lecturers',
employees' and
students' perception;
means of the seven
dimensions of the
corporate scale

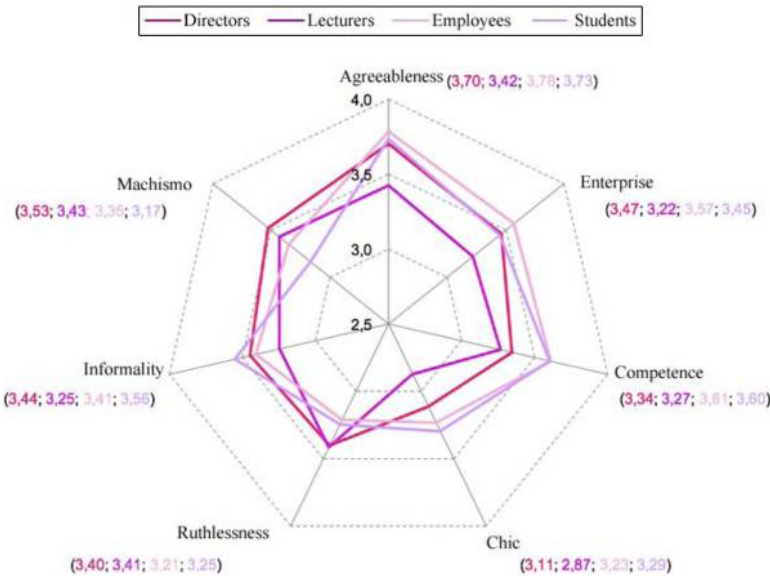
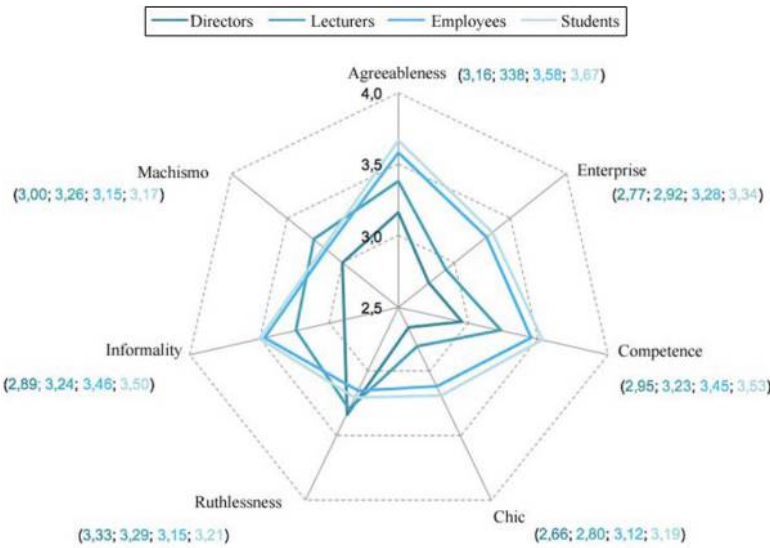


Figure 4.
Corporate reputation
of the environment
according to
directors', lecturers',
employees' and
students' perception;
means of the seven
dimensions of the
corporate character
scale



neither severe nor chauvinistic. The directors attribute insignificant values, less than three points, to the enterprise, competence, chic and informality dimension. For them, the environment is little innovative, sophisticated and somewhat complex. Students and employees assign positive and significant values to the enterprise, competence, chic and informality dimensions. Lecturers, in addition to the dimensions common to the entire IPB

community, attribute positive and significant values to only the competence and informality dimension of the perceived image of the institutional environment. The enterprise and chic dimensions present insignificant values lesser than three points. Their perception of the institutional environment is of little enthusiasm, seeing the environment as minimally innovative or sophisticated (Martins, 2005).

With this analysis, it can be verified that for the website attribute, there are essentially differences in the lecturers' negative view of the enterprise dimension, which means that, in their understanding, the website is not seen as innovative or exciting. There is a positive view only on the part of the Students of the Chic dimension, demonstrating that in the perception of the Directors, Lecturers and Employees, the site demonstrates lack of sophistication and prestige (Davies *et al.*, 2004).

As the reputation of institutional visual identity is positive in both internal and external perception, and the agreeableness dimension obtains higher means from the entire IPB community, emphasizing that social responsibility helps in the construction of reputation an intangible asset.

In the advertising attribute, there is a difference in only the lecturers' viewpoint regarding the chic dimension, meaning that the lecturers see institutional advertising as unsophisticated or that it does not adequately represent the prestige of the IPB (Davies *et al.*, 2004).

The environment is the attribute where more differences were registered in the IPB Community perception. It can be verified that the directors and the lecturers share the same vision of the environment that is little innovative, little sophisticated and somewhat complex as opposed to the employees' and students' viewpoint that all dimensions have positive and significant values.

It can be concluded that it is possible to identify differences in corporate reputation perceived by the IPB community in relation to the four attributes of the image, thus giving a response to the specific objective under study.

4.4 Polytechnic Institute of Bragança: corporate reputation versus image attributes per school

To answer *RH1*, Student *t*-test was applied. When the violation of the assumptions was verified, the Mann–Whitney test was applied for two independent samples. The two independent samples used were staff and students. This analysis was performed for each school and each image attribute.

Table V shows the results obtained, and it can be verified, for ESA, that by applying the Student *t*-test for the two independent samples, there are statistically significant differences with respect to the website and environment attribute. For EsACT, there are statistically significant differences in relation to website, advertising and environment attributes. For ESTiG, there is a statistically significant difference with respect to the website attribute. Regarding ESE, it is verified that no attribute presents statistically significant differences between the identity (staff) and the image (students). Having violated the normality assumption, in the case of ESSa, the Mann–Whitney test was used, so from the results shown in Table V, it is demonstrated that no variable presents statistically significant differences.

From the values achieved and presented in the previous table, it can be said that there is enough statistical evidence to affirm that at least one of the distributions for corporate reputation in the ESA, EsACT and ESTiG is different. For ESSa, there are no significant differences in the responses to corporate reputation, that is, there are no differences between

[illegible]

identity (staff) and image (students) regarding the website, visual identity, advertising and environment attributes. In this sense, *RH1* is answered and is validated.

4.5 Differences between the identity and the perceived image of the Polytechnic Institute of Bragança by dimension of corporate character scale

To answer *RH2*, Student *t*-test was applied for the two independent samples.

From [Table VI](#), it can be verified that the results obtained show statistically significant differences in the perception of identity (staff) and image (students) in relation to agreement for website, advertising and environment attributes; entrepreneurship for website and environment attributes; competency for the website, advertising and environment attributes; chic and informality for all attributes in the study; and machismo for the advertising attribute. Regarding the ruthlessness dimension, there are no statistically significant differences in any of the indicated attributes.

In general, and according with the values obtained, it is tested that there is enough statistical evidence to affirm that there are differences between the identity and the image perceived by the IPB community, by dimension, thus *RH2* was corroborated.

5. Conclusions and future research

This study intends to raise questions about the need of service area organizations, such as HEIs, to consider design management as a differentiating and competitive advantage tool, increasing value to services and boost its corporate reputation.

It was possible to show how the convergence between management and design is fundamental to add value to services, using management tools in the scope of design, such as the analysis and knowledge of markets where HEIs work, marketing strategies and communication or the analysis of the brand, converging this knowledge with the design, in the scope of the management. That is, to plan, implement, coordinate and control the entire development process of the design area within the organization.

As was shown in the study, the design competencies of the public higher education sector can go much further than acting at the strategic level. It is at this strategical level that a design implementation programme is created, with the top management of the organization establishing its directives of action in the markets where it operates to reflect its corporate reputation in a positive way in the mind of the consumer.

The SWOT analysis was carried out at the IPB, Portugal, to understand the main aspects that characterize the strategic brand position of the IPB, both internally and externally (identity and image), determining the key factors for success to be considered in design management. With the SWOT analysis developed for the IPB it is possible to verify that its strengths are focussed on internationalization, with the IPB standing out in terms of leadership of the Portuguese Polytechnics Institutes, and the IPB being the only Institution of Higher Education in the district of Bragança. Although located in the interior of the country, IPB has the advantage of offering a service with very good price/quality of life that is similar to the level of courses and quality of life of institutes situated in the city. Despite a strategy focussed on internationalization, the IPB presents shortcomings in internal communication at the level of employees and in the sharing of information among organizational units, presenting a lack of systematization of IPB news and thus reinforcing the institute's brand not only in the internal community but also in the external community. It is important to emphasize the difficulty in innovating, not having a design culture, at a strategic level, in order to emphasize multidisciplinary, that is, to think about the coordination of tasks, process and sequence of these decisions. The absence of a Communication department, adding Marketing and Design values does not allow the IPB to

Table VI.
Results for the
identity and image
perceived by the IPB
community by
dimension of
corporate character
scale

	Website			Visual identity			Advertising			Environment		
	M	SD	Test	M	SD	Test	M	SD	Test	M	SD	Test
<i>Agreeableness</i>	3.53	0.657	Student <i>t</i> -test	3.62	0.649	Student <i>t</i> -test	3.50	0.674	Student <i>t</i> -test	3.39	0.700	Student <i>t</i> -test
	3.80	0.578	<i>p</i> -value < 0.001	3.75	0.594	<i>p</i> -value = 0.073	3.73	0.656	<i>p</i> -value = 0.005	3.67	0.762	<i>p</i> -value = 0.002
<i>Enterprise Staff</i>	3.00	0.774	Student <i>t</i> -test	3.40	0.698	Student <i>t</i> -test	3.30	0.841	Student <i>t</i> -test	2.96	0.791	Student <i>t</i> -test
	3.31	0.617	<i>p</i> -value < 0.001	3.49	0.692	<i>p</i> -value = 0.290	3.45	0.663	<i>p</i> -value = 0.101	3.34	0.795	<i>p</i> -value = 0.001
<i>Competence</i>	3.45	0.628	Student <i>t</i> -test	3.55	0.609	Student <i>t</i> -test	3.33	0.728	Student <i>t</i> -test	3.24	0.704	Student <i>t</i> -test
	3.63	0.564	<i>p</i> -value = 0.003	3.65	0.636	<i>p</i> -value = 0.161	3.60	0.610	<i>p</i> -value = 0.001	3.53	0.735	<i>p</i> -value = 0.001
<i>Chic</i>	2.83	0.542	Student <i>t</i> -test	3.15	0.560	Student <i>t</i> -test	2.95	0.682	Student <i>t</i> -test	2.84	0.675	Student <i>t</i> -test
	3.14	0.535	<i>p</i> -value < 0.001	3.33	0.595	<i>p</i> -value = 0.007	3.29	0.592	<i>p</i> -value < 0.001	3.19	0.708	<i>p</i> -value < 0.001
<i>Ruthlessness</i>	3.45	0.687	Student <i>t</i> -test	3.44	0.737	Student <i>t</i> -test	3.38	0.701	Student <i>t</i> -test	3.28	0.749	Student <i>t</i> -test
	3.49	0.676	<i>p</i> -value = 0.545	3.32	0.766	<i>p</i> -value = 0.186	3.25	0.793	<i>p</i> -value = 0.142	3.21	0.815	<i>p</i> -value = 0.465
<i>Informality</i>	3.06	0.665	Student <i>t</i> -test	3.40	0.611	Student <i>t</i> -test	3.29	0.589	Student <i>t</i> -test	3.24	0.616	Student <i>t</i> -test
	3.53	0.604	<i>p</i> -value = 0.001	3.59	0.579	<i>p</i> -value = 0.005	3.55	0.632	<i>p</i> -value = 0.001	3.50	0.739	<i>p</i> -value = 0.002
<i>Machismo</i>	3.21	0.673	Student <i>t</i> -test	3.35	0.809	Student <i>t</i> -test	3.43	0.700	Student <i>t</i> -test	3.22	0.810	Student <i>t</i> -test
	3.28	0.681	<i>p</i> -value = 0.322	3.25	0.759	<i>p</i> -value = 0.284	3.17	0.770	<i>p</i> -value = 0.004	3.17	0.814	<i>p</i> -value = 0.637

identify students' needs and current, future and potential partnerships in order to be able to act strategically in the national and international markets.

Lack of studies that perceive how the IPB is seen by its internal and external community prevents the creation of innovative and efficient communication policies. The main threats to the IPB are the resources of the competitive HEI to the use of Marketing and Strategic Management in the national and international market and the social undervaluation of the importance of polytechnic education in relation to the university. In addition to the crisis in the country and the departure of qualified professionals abroad, as well as the low employability of graduates, a mentality of devaluing higher education diploma is also present. As opportunities, it is possible to emphasize the greater awareness of HEIs in the creation of an identity management plan, realizing that disciplines such as design and marketing are essential for an organization's sustained development and thus having the ability to innovate and spread integrated communication as a unique opportunity for the economic growth, modernization and humanization of IPB. With the evolution of the society and technologies, new opportunities such as the possibility of offering lifelong learning courses or the attribution of ECTS credits in extracurricular activities arise. New lifestyles seek new services, such as the growth of environmental values, in which the IPB stands out because it is located in the interior of the country with less pollution and more quality of life. The strong consumer trend towards customization can be applied as something innovative in the field of education.

When talking about corporate reputation, it is talking about intangible assets of the brand, such as the image, the relationship with customers and the relationship with employees and their motivation, as well as other human factors, that are extremely important for the success of an organization, essentially when talking about service organizations like HEIs. Intangible assets are unique to the organization that generated them, and although they provide benefits, they do not have a quantitative value.

In this logic of evaluation of intangible assets, the study allows one to perceive differences that exist between the identity and image of the IPB that is reflected in its students, that is, to evaluate the reputation perceived by the staff (internal perspective) and the reputation perceived by the students (external perspective).

The research also allows to conclude that although it was found that the IPB has a positive reputation, it presents differences between the staff's perception of its identity and the students' perceived image. The design management process can, after this analysis, guide the organization so that its corporate reputation is aligned and thus perceived positively where it presents negative points. Branding personality traits, as seen by consumers and the general public, should be aligned with internal values for greater success over competitors (Keller and Richey, 2006; Marticotte, 2015).

Differences in the IPB website reputation indicate that it should rethink its digital strategy by redesigning the site according to the UI (user interface) design and the UX (user experience) design trends, allowing users to anticipate user needs to facilitate their access and use, providing a friendlier and exciting experience. In this sense, and by improving the functionality and usability of the site, it is possible to innovate in the way of communicating with their target audience.

In relation to the perceived reputation of the environment of the IPB, this is the dimension where more differences in the perception of the community were manifested. The directors and the lecturers share the same vision of an environment that is not innovative, sophisticated and somewhat complex, unlike employees and students, who attribute positive and significant values to all dimensions. A pleasant, welcoming and well-marked environment makes a difference in employee motivation. In this case, it would be

appropriate to improve access to the IPB campus and to improve all exterior and interior signage of buildings. Providing more comfort in all schools, rehabilitation and updating spaces, internal and external, that meet new trends and lifestyles, as well as creating zones of personal conviviality, is an important factor for improve and facilitating internal communication.

This research focussed on the evaluation of corporate reputation of IPB on the whole. However, as it is composed of five independent organizational schools, the community may have been influenced in its assessment by the surrounding environment of the school it is attending, such as an EsACT student responding according to the vision he has of the EsACT website and not the IPB Web, as they are different. To overcome this limitation, the study can be specifically applied to each school, evaluating in the future, the perception of the respective website, visual identity, advertising and environment according to its directors, lecturers, employees, students and also the external community.

It would also be pertinent to broaden the stakeholders' scope, encompassing the external community of the IPB, that is, extending the study to the external public, such as parents, companies, suppliers and secondary students.

Another suggestion of future research would be to evaluate the level of design present in the IPB and its strategic relationship with other public higher education institutions using management tools like BSC (Balanced Scorecard) to perceive what they invest in design and how to monetize it (design ladder) for a culture of design and innovation in service organizations, namely, in HEIs.

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Further reading

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