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Culturally Inspired Design: Product Personalities to Capture Cultural Aspects

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1. Introduction

This chapter, focusing on culturally inspired design, with emphasis on Portuguese and Lusophone cultures, is developed in a two stage process (Fig. 1). In the first part, an effort to identify the Portuguese identity reflected in the design of existing products is pursued. In the second part of this work, product design specifications are created based on the assignment of product personalities to capture Portuguese and Lusophone cultural aspects. Both stages of this contribution give rise to new product concepts, which are aimed at exemplifying the profile in existing Lusophone design production (in comparison with other design origins) and at demonstrating the transfer of selected cultural values to designed objects.

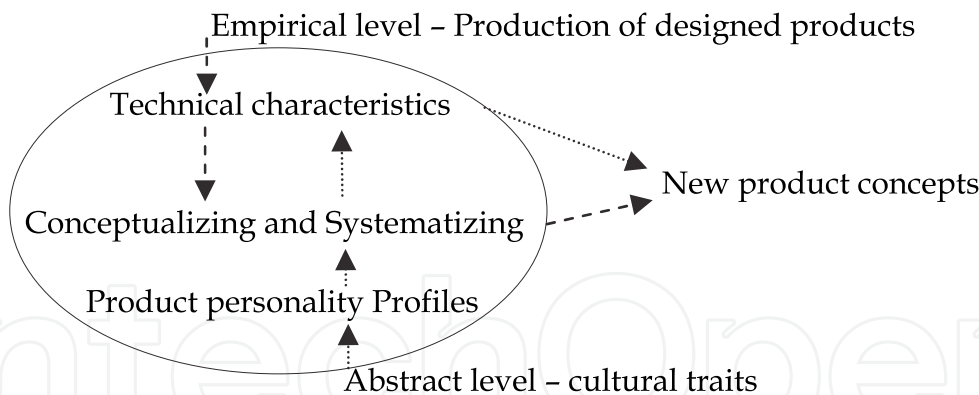


Fig. 1. Depiction of the two streams of analysis departing form an empirical and an abstract level, reaching at new product concepts.

In both stages of the research, an array of product features was drawn up, in the first case from observation, in the second case from matching of cultural traits with product features, through the use of the product personality assignment approach. Culture may inform design by a process of context-informed practice. Hence, collectively-held norms of practice shared within contexts may well introduce culture into the design process, even if indirectly. Geographical context may influence the practice and results of design in two ways. One the one hand, everyday specific features of a location (availability of technology and materials, climate, local modes of exchange and even cultural factors affecting business activities) produce particularized actions, which may however be

contrasted with perceived globalized, mainstream and dominant modes of practice. On the other hand, when viewing design as a mode of communication, peripherization and engagement of a consciousness of difference may emerge, depending on location (Julier 2007). No factual data with a substantial depth about the cultural traits of the nations portrayed in this chapter was found in literature, with the exception of the work by the Dutch social scientist Geert Hofstede. Hofstede developed and published, in 1980, four national measures of culture applied to a set of selected countries. Portugal and Brazil were the only Lusophone countries included in Hofstede's study. The national measures of culture presented by this author were: Power Distance, Masculinity, Individuality and Uncertainly Avoidance. The nature of the national measures of culture presented by Geert Hendrik Hofstede, was not deemed adequate to advance the development of the goals set for the second project reported in this chapter. A literature survey was hence pursued, informing, through the perspectives of several authors, on the Portuguese and Lusophone cultural traits.

The current geo-strategic setting gives some added importance to the Portuguese-speaking world. Both Brazil and Angola, in part, have been claiming themselves as regional powers (in South America and sub-Saharan Africa, respectively). In this context, the design of products as part of the cultural expression of people is associated with its production and industrial capacity, and can be seen as a front for disseminating advancement of culture, while its existence is related to the relative importance of this culture in the globalized world. It is not mandatory to join Brazilian design, and eventually Angolan, or the design of other Portuguese-speaking countries, with Portuguese design. In the cultural sphere, and the approach that underlies this work has a strong cultural component, it will be difficult to disentangle the historical and cultural legacy of the area of language, as this is one of the main ways to define and mark broad cultural groups. Thus, in this work, it is considered that the combination of design production in the countries of official Portuguese language is relevant.

1.1 Aims

The main purpose of the first part of this chapter is to seek the identification of a possibly existent identity of Portuguese and Lusophone Design, according to different perspectives (e.g. form, brand, material, archetype), from the study of selected cases. While it is acknowledged that an analysis which is mostly based on the material properties of products is necessarily limited in scope, the consideration of experience or use related qualities, given the breadth of this survey, was inferred, albeit visually as their assessment by actual use would not be feasible. Initially, a historical perspective of Portuguese and Brazilian design was drawn up. Since the existing information concerning existing design of other Lusophone countries is very limited, it was chosen to analyse Portuguese and Brazilian design only, and from these two identities, extrapolate a proposed Lusophone design identity, focusing on material properties mostly. From this analysis, similarities were perceived between Portuguese and Brazilian (Lusophone) designs, according to the analyzed products. Another analysis of designed products was then carried out, focusing on countries with design production of great international appreciation so that it would be possible to differentiate this against Lusophone design. The analyzed regions and countries, for the purpose of differentiation, were Scandinavia, which includes the Nordic countries, as well as Italy and Germany. To conclude the first stage of this research, and project it in a practical component, two conceptual designs were developed.

The second part of this chapter reports on a project that aimed to identify the cultural traits of the Portuguese speaking countries, with regard to both an internal perspective as well as an outsider's perspective. Subsequently, the translation of these traits into product design was intended, attempting to give a Portuguese and Lusophone projected cultural identity to products. To this end, a methodology was developed in several stages. For the application of the methodology, several studies were carried out. The personality attributes of products were analyzed using a technique known as Product Personality Assignment (Jordan 2000) in order to mediate the transfer from the identified cultural traits to product design requirements. Patrick W. Jordan used positive and negative characteristics of people, developing a list with 209 descriptors of personality and, after a collation and synthesis of work arrived at a list of 17 pairs of dimensions of personality. These dimensions are composed of pairs of opposing personality descriptors, such as Complex / Simple. Thus, Personality Assignment to a product is a tool that explores the emotional ties existing in the relationship between user and product.

2. Characterization of the identity of existing Portuguese and Brazilian design

In this section, an attempt to identify the Portuguese and Brazilian identities reflected in the design of existing products is carried out. This contribution gives rise to new concepts, which are aimed at representing cultural traits embedded in objects. An array of product features is drawn up from observation of a sample of designed objects (208), whose pictures were readily available from design web-blogs and design museums which were found through web searches, to empirically assess the existence of a Lusophone design style, in comparison with other design origins. The main purpose of this section is to seek the identification of a possibly existent identity of Portuguese and Lusophone Design, according to different perspectives (e.g. form, brand, material, archetype), from the study of selected cases. While it is acknowledged that an analysis which is mostly based on the material properties of products is necessarily limited in scope, the consideration of experience or use related qualities, given the breadth of this survey, was inferred, albeit visually as their assessment by actual use would not be feasible. Initially, a historical perspective of Portuguese and Brazilian design was drawn up. Since the existing information concerning existing designs of other Lusophone countries is very limited, it was chosen to analyse Portuguese and Brazilian design only, and from these two identities, extrapolate a proposed Lusophone design identity, focusing on material properties mostly. From this analysis, similarities were perceived between Portuguese and Brazilian (Lusophone) designs, according to the analyzed products. Another analysis of designed products was then carried out, focusing on countries with design production of great international appreciation so that it would be possible to differentiate this against Lusophone design. The analyzed regions and countries, for the purpose of differentiation, were Scandinavia, which includes the Nordic countries, as well as Italy and Germany. To conclude the first stage of this research, and apply it in a practical component, two conceptual designs were developed (Fig. 2 and 3).

One of the designs concerns a refrigerator (Figure 2) that intends to reflect the Portuguese identity, without disregard to new options, both in terms of currently available material and technology. The other conceptual design consists of a sofa with a special focus on Lusophone related features (Figure 3). The latter may assume an array of different configurations, and it differs from similar products in its versatility, having as main function that of a sofa, but including a footrest for the support of the users' feet, and converting into a set of table with three stools if necessary.



Fig. 2. Refrigerator designed with inspiration on the Portuguese “postigo” (small door or window within a regular door) (designed by the third author).



Fig. 3. Multi-purpose object (sofa, table, shelf, stools and footrest) designed with inspiration taken from the traditional “canapé” (multiple seat wooden chair) (designed by the third author).

2.1 Methods deployed to unveil existing design profiles

The overall goal of the study was to identify from various perspectives (brand, material, archetype, among others) the contours of a possibly existing identity of Lusophone design, from the study of selected cases. The guiding specific objectives were the following:

- Identifying the various types of associations that support cultural identity and seeking to illustrate them by adopting a historical perspective.
- Analyzing products of international recognition to identify a possible identity of Portuguese and Lusophone design.
- Placing the proposed identification of traces of Lusophone cultural identity in the context of other traditions, as a means of differentiation.
- Proposing solutions or concepts in continuity to what was found, while adopting contemporary or emerging technology.

To assist in achieving these objectives the following research questions were developed:

- Over time is there a continuity and perseverance in the appearance of traces, signs or marks on the production of objects within the Lusophone space, and in Portugal?
- Are there materials, shapes, graphic markings, colours, and other product properties typically Portuguese (Lusophone), and, or, with international acceptance?
- Are there any identifiable differences between the products of Lusophone production and the most visible design currents with a geographical identity, such as Scandinavian, Italian or German design?

An extensive review of Portuguese and Lusophone design was carried out in order to better understand it. The new designs created in the course of this study are based on results from the analysis pertaining to the products shown in the following sections. The selection of products comprised in the analysis presented (including iconic designs identified in design web-blogs, items for sale at the Museum of Modern Art, New York, red dot design awards and design fair catalogues, e.g. Milan design fair) has necessarily influenced the results

attained. Had other objects produced in the same geographic spaces been considered, different results probably would have been found. An underlying hypothesis for the approach deployed in this chapter is that cultural influences are capital even when not consciously considered by designers, and are hence reflected in the design production itself. A possibly existing design identity and its continuity over time was sought, in order to recognize characteristics and similarities among products. Design production was not only examined within the Lusophone space, but its international acceptance and appreciation was also considered, so that, through this analysis, it would be possible to recognize the character and contours of the design culture in order to give continuity to a tradition of centuries. It then became imperative to perform a new product search to investigate the differentiation against highly visible design traditions, as is the case of Scandinavian, Italian and German designs. Finally, and from the analytical treatment performed to the data collected in the survey mentioned above, two design concepts are presented which combine Portuguese and Lusophone design tradition, respectively, with contemporary materials and technologies. Ultimately, the aim of these concepts was to establish an alliance between the cultural backgrounds of Portuguese design with the numerous technological possibilities that are presented everyday and that enable the achievement of product improvements at various levels. These improvements focus on aspects such as product performance and increasing the quality of human life.

2.2 Product characteristics associated with identity

This section seeks identification of various types of associations that support cultural identity and seeks to illustrate them by adopting a historical perspective. The aim is also to seek answers to the question: over time is there a noticeable continuity and perseverance in the appearance of traces, signs (materials, shapes, graphic markings, colours, and so on) in the production of objects within the Lusophone space, and Portugal? To answer this question a web based search for products with origins in Portugal and Brazil was carried out. As was observed throughout the many examples encountered in our review, over time there is a continuity and perseverance in the appearance of traces, signs (materials, shapes, graphic markings, colours, and other) in the production of objects within the Lusophone space (represented only by Brazil), and Portugal. With regard to the continuity of Portuguese design, analyzing the set of iconic products encountered (regarding the similarities at technical and conceptual levels) the colours that are most used are white, beige, black, green, metallic grey, red, brown and yellow. The materials most used are ceramic, wood, porcelain, cork, metal and leatherette. In what concerns form, the products are characterized by simplicity, rationality, curved shapes, elegance and convening an organic appeal. Portuguese designers innovate especially in incorporating several features to objects, they take care in choosing the most appropriate and up-to-date material, and the products are usually easy to use and provide great comfort, with no graphic markings.

In terms of the continuity of Brazilian design, analyzing the set of iconic products encountered (regarding the similarities between technical and conceptual qualities), suggests that Brazilian designers seem to show a preference for brown, white, black and green colours. Materials-wise, a higher adherence to wood, plastic, leather and metal is visible. Brazilian products are characterized primarily by simplicity, rational and straight

lines, wavy and winding forms. These designs are innovative, incorporate functional improvements and demonstrate savings in the materials used in the objects, while designers select the most recent materials and apply high mutability to their projects. The designers of this nationality do not use graphic markings and inferred ease of use of their products varies between easy to medium. In the following section, it is possible to define an identity for Lusophone design, based on the intersection of Brazilian and Portuguese design characteristics.

2.2.1 Portuguese and Brazilian design

Regarding the possibility of a cultural identity of Portuguese design, one can thus conclude that the most common colours are (described by decreasing frequency): white, black, brown, beige, metallic grey, green, red, and cork yellow. The materials preferably used by Portuguese designers in most objects are clay (pottery), wood, cork, porcelain, plastic, metal and leatherette. Regarding the shape of the products, these are characterized by their simplicity, rationality, curved lines, elegance, organic character, softness and in some cases straightness of lines. This design culture stands out for its innovation in the field of materials, and it also reflects concerns about the ease of use, comfort, very often the addition of new materials and products are aesthetically modern. Surveyed objects are mostly devoid of graphic markings, except for the product brand. Finally, all objects are considered to require between easy and medium ability for their use.

Brazil also shows important similarities between its designers' production, in their choice of colours such as brown, white, black and green, this similarity is clear. They use the most common materials including wood, metal, plastic and leather. The sampled products designed in this nation exhibit similarities among each other such as simplicity, straight lines, rationality, and undulating and sinuous lines. Originality and innovation stand out in the evident concern for comfort, functional improvements, material savings, and conscious selection of materials by Brazilian designers and through the mutability given to their products. The objects are mostly devoid of graphic markings and inferred ease of use varies between large and medium, although most of these products were deemed easy to use.

In identifying a possibly existing identity for design among the Portuguese language countries, albeit it was based only in Portugal and Brazil, the following characteristics were identified: colours mostly used are white, brown, black and green; materials are typically wood, plastic and metal. Moreover, the products are characterized mainly by their simplicity, rationality and straight lines. The designers differentiate themselves by speaking of the choice of material, the comfort they bring to the objects, assigning more than one functionality to their products and at the same time incorporating mutability into their designs. The objects created within the Lusophone space are generally easy to use, and are mostly devoid of graphic markings.

2.2.1.1 Sampled Portuguese designs

Besides the 46 product designs showed in this section, an additional set of 26 other products was analyzed in this study, but are not shown due to space and size restrictions (Fig. 4; images shown are in the public domain; for a complete set of references see Simão & Coelho, 2011).

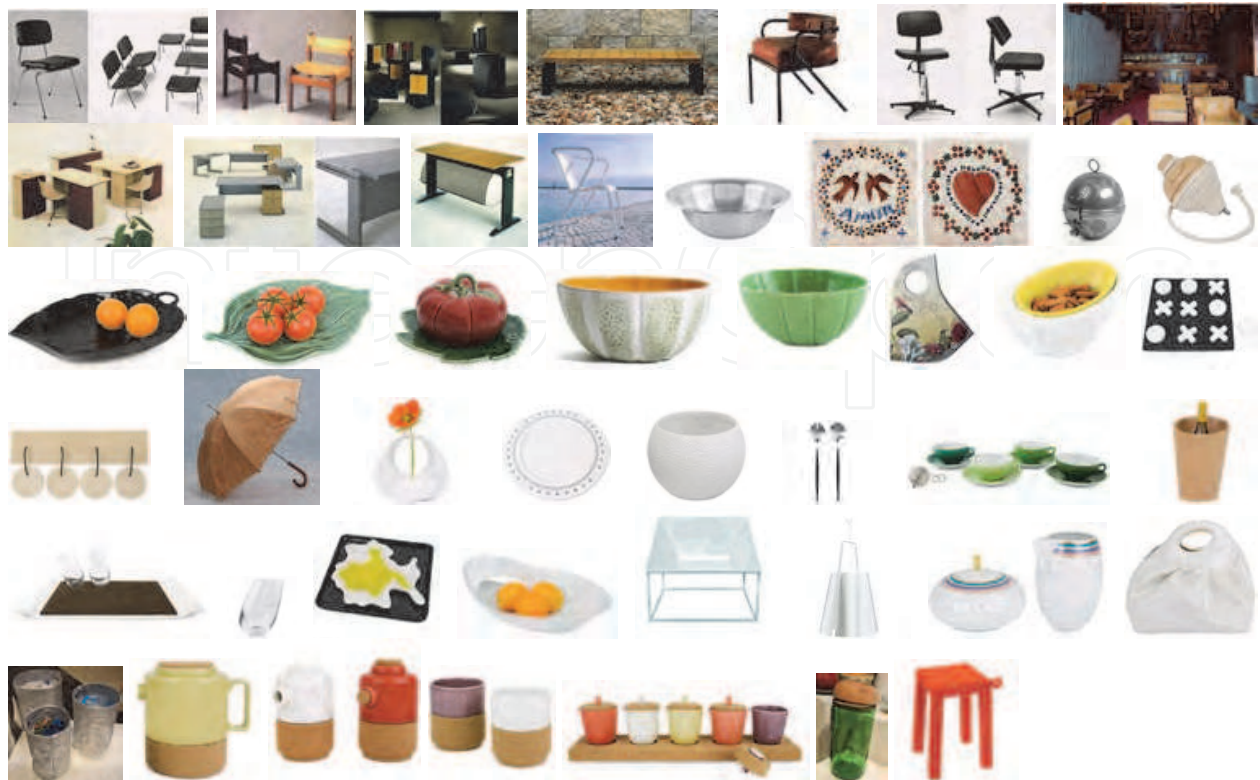


Fig. 4. Images of Portuguese designed products sampled as a basis for analysis.

2.2.1.2 Sampled Brazilian designs

Besides the 32 examples of product design from Brazil shown in this section, an additional set of another 32 products was considered in the analysis presented in this study, but are not shown due to space and size restrictions (Fig. 5; images shown are in the public domain; for a complete set of references see Simão & Coelho, 2011).

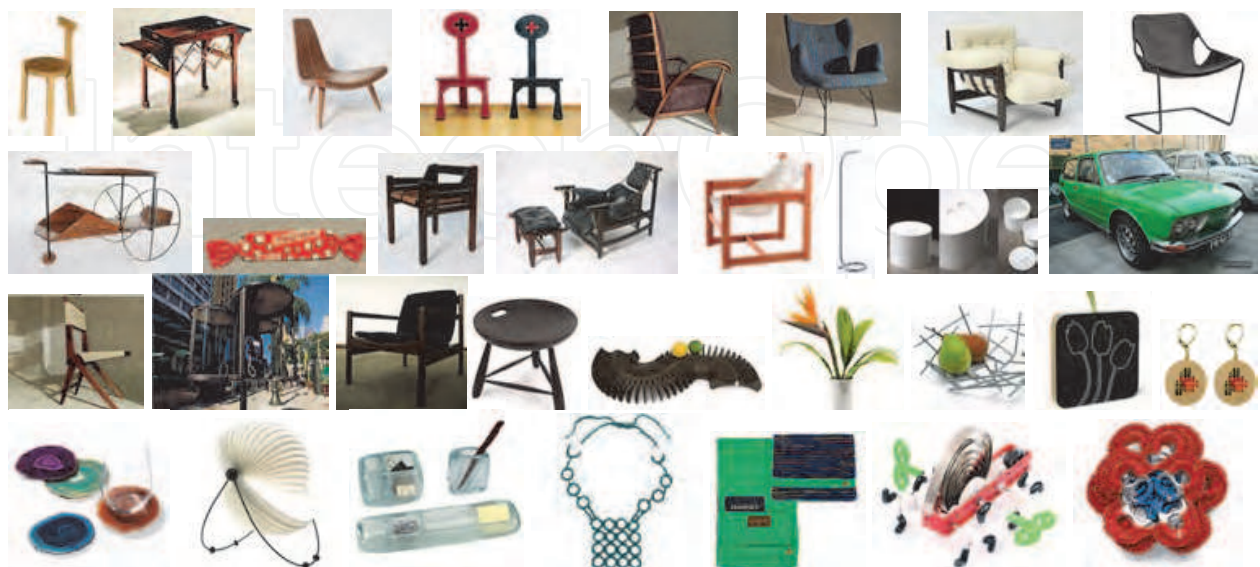


Fig. 5. Images of Brazilian designed products sampled as a basis for analysis.

2.2.2 Comparison with Scandinavian, Italian and German design

This section is intended to achieve the objective of identifying the characteristics of Lusophone design identity in the context of other geographically based design traditions, as a form of visible differentiation. Hence, it seeks to identify differences between the products of Lusophone origin and products with a Scandinavian, Italian and German origin.

As shown in this section, there are some differences between Lusophone design and Scandinavian, Italian and German design. This section enables establishing material and use based differences drawn from the four design origins included in the study.

With regard to colour preference very significant differences do not exist, however, Lusophone design resembles Scandinavian design in this respect, differing from Italian and German design by the use of more subtle and neutral colours. The colours that are primarily used by the Italian current tend to be more flashy (Table 1).

Lusophone Space (136)		Scandinavia (23)		Italy (26)		Germany (23)	
White	25%	White	35%	White	36%	Black	36%
Brown	17%	Red	30%	Metallic Grey	32%	Metallic Grey	28%
Black	15%	Black	30%	Yellow	24%	White	28%
Green	7%	Brown	26%	Black	20%	Blue	16%
				Red	20%	Grey	12%
				Blue	16%	Orange	12%
				Pink	12%		
				Brown	12%		
				Green	12%		
				Orange	12%		

Table 1. Colour characteristics prevalent across the sampled products.

In relation to the material differences visible in the material of choice for products, these are shown in Table 2. Portuguese speaking designers have a special preference for wood primarily, followed by plastic, while the materials of preference of Scandinavian, Italian and German designers (metal) are the least utilized by Lusophone designers.

Lusophone Space (136)		Scandinavia (23)		Italy (26)		Germany (23)	
Wood	17%	Metals	48%	Metals	52%	Metals	32%
Plastics	6%	Plastics	30%	Plastics	40%	Wood	24%
Metals	4%	Wood	26%	Wood	24%	Leather	20%
		Fabric	17%			Plastics	16%
		Glass	17%				

Table 2. Materials that are prevalent across the sampled products.

At a formal level, design projects with Lusophone and German origins display a great sobriety instilled in the shape of products, while designs from Italy and Scandinavia display more organic and fun shapes than those from Germany and the Lusophone space (Table 3). Innovation in the Lusophone space is still lagging behind the other design streams examined. Although Lusophone products reflect innovation and originality, they are still short of the originality that grew with these other three schools for decades and contributes to highlighting the timeless tradition of their designs (Table 4). Across the items displayed in Table 5 there is not much difference, since the products of the four nationalities and, or, regions, are usually devoid of graphic markings, using them only to show the product's brand. Products are mostly similar in terms of inferred ease of use (Table 5).

Lusophone S. (136)		Scandinavia (23)		Italy (26)		Germany (23)	
Simplicity	21%	Simplicity	52%	Simplicity	32%	Simplicity	52%
Rationality	14%	Rationality	26%	Round Lines	20%	Minimalism	44%
Straight Lines	5%	Organic Shapes	13%	Fun Shapes	16%		
				Funcionality	12%		

Table 3. Form characteristics that predominate in the products sampled.

Lusophone S. (136)		Scandinavia (23)		Italy (26)		Germany (23)	
Changeable	6%	Adaptable	13%	Innovative Technology	16%	Adaptable	28%
Materials	5%	Eco-Sustainable	13%	Design classics	12%	Innovative Technology	24%
Comfort	5%	Modern	13%	Compact	12%	Comfort	20%
		Multiple functions	13%	Fun Shape	12%	Multiple functions	16%
				Multiple functions	12%	Modular	12%
				Ergonomic	12%		
				Changeable	12%		

Table 4. Characteristics of originality and innovation prevalent across the sampled products.

Lusophone S. (136)		Scandinavia (23)		Italy (26)		Germany (23)	
Graphical Markings							
Devoid	96%	Devoid	100%	Devoid	80%	Devoid	76%
Brand	4%			Brand	20%	Brand	24%
Perceived Ease of Use							
Easy	96%	Easy	100%	Easy	88%	Easy	88%
Average	4%			Average	12%	Average	12%

Table 5. Prevalent characteristics of ease of use and the presence of graphical markings in the products sampled.

2.2.2.3 Sampled German designs

The sample consists of 23 product designs, which are the basis on which the analyses relating to German design are made in this study (Fig. 8; images shown are in the public domain; for a complete set of references see Simão & Coelho, 2011).



Fig. 8. Images of German designed products sampled as a basis for analysis.

2.3 Discussion on the use of product profiles to generate new concepts

This section discusses the design concepts proposed in continuity to the characteristics found, but adopting contemporary or emerging technology and materials. Two concepts were proposed (Figures 2 and 3). One was designed taking into account the characteristics of Portuguese products taken from the analysis done for Portuguese products. The other one reflects the characteristics of Lusophone joint design identity. These concepts seek to provide continuity to the two design cultures focused, through the selection of factors which were set similarly to the existing sampled products. These factors include the colours most frequently used by designers of these nationalities, their chosen materials and the formal characteristics of their products. Innovation was sought in these creative concepts, in order to distinguish these from existing products on the market. The focus of the first concept fell on power savings, i.e. on an economic level, without neglecting the functional level (Figure 2). The innovations inculcated in the second concept concern mainly the formal domain, in an attempt to make the product both functional and versatile, and in such, conferring adaptability to satisfy changing and dynamic user needs (Figure 3).

The results suggest that, in order to continue a tradition of centuries without which the designed products will no longer be accepted within and outside the Lusophone space, these should incorporate colours, materials and forms typical of the Portuguese and Lusophone culture. Colours of choice of Portuguese and Lusophone designers, identified as a result of the analysis undertaken in this study, are white, brown, beige, green, metallic grey, red, cork colour tones, yellow and blue. The materials selected by these designers are usually wood, ceramic, cork, plastic, porcelain, metal, steel, aluminium, and vinyl or leather. At a formal level, the products reflect simplicity, rationality, curved lines, elegance, organic character, smoothness and straightness of lines. Designs should also reflect increasing concerns for sustainability, ecological values and advanced functional, since the products designed by designers of these nationalities are mostly very easy to use and should offer more consistently clean and sustainable solutions to problems faced by the consumer society in the current times.

Significant similarities were found between the design productions sampled in this study. Portuguese design production, as sampled in this study, shows a preference for colours such as white, black, beige, brown and metallic grey. In what concerns materials, the choice falls mainly on ceramics, wood and cork; in terms of shape or form, products are simple, rational and often incorporate curved lines. Although Portuguese product designs show a striking low level of innovation, designed products are deemed easy to use and are mostly devoid of graphical markings. For Brazilian designers, it can be concluded that they prefer colours like brown and white, in terms of materials, their preference falls on wood and in terms of forms, their products are conspicuously simple. Brazilian designers innovate in particular in products that integrate technology and that are comfortable, while Portuguese designers innovate mostly by conceiving products that are very user-friendly. Portuguese designs are mostly devoid of graphical markings. From the joint analysis of the sampled designs pertaining to these two nationalities it can be concluded that Lusophone design gives primacy to colours like white, brown and black; wood is the material of choice and the form of these products is simple and rational. The rate of innovation in Lusophone product design is not high, but designers produce user-friendly products which are devoid of graphical markings.

As a result of the analysis presented, Scandinavian chromatic preferences reflect mainly white, red, black and brown. In respect to the materials' order of preference, it begins with plastic, followed by wood, metal, textiles, glass and, finally, their products are also characterized by simplicity, rationality and the use of organic forms. The innovations incorporated in these are evident at the level of adaptability, sustainability, multi-functionality of products and modern appearance. The objects designed within this culture are devoid of graphic markings and are very easy to use. Italian design uses more often as colours white, metallic grey, yellow, black, red, blue, pink, brown, green and orange. In terms of materials that stand out, there is plastic, metal, with special focus on steel, and wood. At the form level, products are characterized by simplicity, curved shapes, fun shapes and functional form. Their originality can be seen through the adaptation of new technologies to design, which led to the creation of great classics of design, striving to create compact objects. Multi-functionality, ergonomics, and fun are common product attributes. Italian product designs include some graphic markings although most products are devoid of them. Inferred ease of use ranges from medium to easy. Finally, in what concerns the German current, based on the sampled designs covered within this study, often designers opt for black, metallic grey, white, blue, grey and orange colours. In terms of materials there is a preference for wood, leather, steel and plastic. These products' main characteristics are simplicity and minimalism. Their originality lies on adaptability and incorporation of new technology, great comfort, modularity and multiple functionality. The products designed in Germany are mostly devoid of graphical markings and if they do have them, they concern the product brand. These products are deemed mostly easy to use.

In this era of globalization accelerated by technology, although it is not noticeable at first glance, there seem to be apparent marks of national design in the existing design production, even if a conscious effort to create them was absent from the design process. It is a fact that the design originating in different nationalities and cultures is similar in many ways, but the designer, is influenced by culture, societal norms and environmental conditions of the place where he or she grows and matures. Therefore, even if there is no deliberate intent, design will always reflect personal characteristics and the experiences of those who design the products, even if sometimes barely visible.

3. Mediation by product personalities to transfer Portuguese and Lusophone cultural traits to product design

The approach reported in the second part of this chapter seeks to explicitly identify cultural traits, and tentatively embed a selection of these in the design of products, in order to propose a direct method to confer an interpreted cultural identity to products undergoing the process of design. Hence, positive and neutral cultural traits were selected, after identifying the features of the cultural identities focused (study I). Thus, the application of the methodology began with unveiling the Portuguese positive and neutral traits and the commonalities between the positive and neutral identity aspects within the Lusophone cultural identities. Based on these features, another study (study II) was conducted to match these cultural traits with the personality attributes of the product.

After matching the selected cultural traits with the personality dimensions of the product, a further study was conducted (study III), by selecting, as examples, a set of clothes pressing warm irons (4) and a set of coffee machines (8). These were examined with respect to a listing of the 17 personality dimensions, and considering the matching of basic technical characteristics for each product to its position and placement personality-wise.

Another study (study IV), taking into account the previous match, was carried out establishing the relationship between personality attributes and technical characteristics of the products tested in the previous study (study III). From this process, two product profiles were obtained as a result, which were then implemented in two product lines, a Portuguese and a Lusophone one. These product line results were chosen from a broad base of concepts generated, considering objective criteria. After the generation of concepts for the two product lines, there was an empirical validation by sampling of industrial design students (study V) to confirm whether the proposals developed did turn out to reflect Portuguese cultural identity and Lusophone cultural identity, respectively.

3.1 Method deployed to transfer cultural traits to product requirements

The development of the second project reported in this chapter was structured by a methodology that sought to satisfy an overarching aim and specific goals and provide answers to their inherent research questions. The overarching aim was defined as identifying the aspects that define Portuguese and Lusophone cultural identities, adopting both an internal and an external perspective, and seeking to extrapolate these cultural identity traits, in order to contribute to develop a Portuguese design identity (for Lusophone consumption) and a Lusophone design identity (for global consumption).

One specific goal was set as 'performing a survey of Portuguese and Lusophone identity traits, adopting a cultural perspective'. Another one was defined as 'translating the cultural traits identified, in a positivist approach, to a product line with Portuguese character and to a product line with Lusophone character'. The research questions that guided the development of the project were:

- What are the collective cultural identity traits of the Portuguese and Lusophone cultures (seen from the inside and from the outside)? (study I)
- From the set of identified cultural traits, which of these may be regarded as positive and neutral in order to be inculcated in the design production? (study I)
- Is the assignment of product personalities a suitable means of transferring cultural traits into product qualities? (studies II, III, IV and V).

3.2 Study I – Portuguese and Lusophone cultural traits

The study reported in this section, concerning cultural inquiry, was based on literature review to unveil a set of opinions from respected scholars within the humanities disciplines (sociology, anthropology, philosophy) and the relational study of some areas of arts and fine arts. Rather than an exhaustive listing of the whole set of cultural traits surveyed, a subset of results is presented. Partial results obtained for study I are shown in Tables 6 and 7, for

Adventurer (history and humanities) Audacious (literature) Autognose (history and humanities, literature) Autonomous (history and humanities, literature) Aware (history and humanities) Bold (history and humanities, literature) Bucolic (history and humanities) Concrete (cinema, history and humanities) Confident (history and humanities) Contrast (painting) Eclecticism (painting) Colourful (song) Cosmopolitan (history and humanities, painting) Dichotomy aesthetics (paint) Different (history and humanities) Disseminator (cinema) Diverse (cinema, history and humanities, painting) Dreamer (history and humanities) Ductile (history and humanities)	Dynamic (history and humanities, painting) Empirical (history and humanities) Enthusiast (cinema, history and humanities) Epic (history and humanities, literature, music) Ethical (history and humanities) Experimental (cinema) Overview autotelic (cinema) Experimental aestheticism (cinema) Expressive (painting) Flash (history and humanities) Golden (history and humanities) Gracious (history and humanities) Harmony (history and humanities, music) Hetero-textual (literature) Hope (history and humanities, music) Ideological (cinema, history and humanities, painting) Imaginative (history and humanities, painting)	Independent (literature) Industrious (history and humanities) Intellectual Property (history and humanities) Liberal (history and humanities, painting) Likely (history and humanities, literature) Lucid (history and humanities) Modest (history and humanities) Multi-mode (history and humanities) Naturalistic (literature, painting) Noble (history and humanities) Organic (history and humanities) Organized (history and humanities) Original (cinema, history and humanities, literature) Paradigmatic (cinema, history and humanities) Picturesque (history and humanities, painting) Prodigious (history and humanities) Rationalist (history and humanities)	Realistic (cinema, history and humanities, literature) Respectful (history and humanities) Search (literature) Self-consciousness (history and humanities) Self-critical (cinema) Self-reflection (cinema) Sensible (history and humanities) Solidarity (history and humanities) Spontaneous (history and humanities) Strategic Intelligence (history and humanities) Suave (history and humanities) Sublimation (history and humanities) Subtle (history and humanities) Tolerant (history and humanities) Universal (history and humanities) Unmistakable (history and humanities) Virtue (painting) Vital (painting, music)
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Sources: Almeida (1995), Bello (2009), Cabral (2003), Castagna (2005), Costa (1998), Lemièrre (2006), Lourenço (1994, 2001), Moreira (2005), Neto (2005), Quadros (1999), Rodrigues & Devezas (2009).

Table 6. Cultural aspects with a positive nature concerning Portugal (in parentheses the thematic track of the literature review from which the cultural trait was retrieved is indicated).

Abstract (painting)	Elusive (history and humanities)	Naive (history and humanities)
Acumen (literature)	Emblematic (literature, painting),	Needy (history and humanities)
Adaptive (history and humanities)	Feeling depth (history and humanities)	Nostalgia (history and humanities, literature, music)
Allegory moralizing (painting)	Fey (history and humanities)	Ornamental (painting)
Ambiguous (history and humanities)	Fini-secular (literature)	Pantheistic (history and humanities)
Antagonist (history and humanities, literature)	Folklore (history and humanities)	Parental (history and humanities)
Aseptic (history and humanities)	Heroic (history and humanities, literature)	Patriotic (cinema, history and humanities)
Belief in miracles (history and humanities)	Hidden (history and humanities)	People (cinema, history and humanities)
Buck (history and humanities)	Honour (literature)	Proud (literature)
Candor (history and humanities)	Humble (history and humanities)	Radical (history and humanities)
Centred (humanistic-historical)	Hybrid (literature)	Romantic (history and humanities, literature)
Christian (history and humanities, literature)	Hyper-identity (history and humanities)	Allogeneic (history and humanities)
Collective (history and humanities)	Idyllic (history and humanities)	Sacred (literature)
Complex (history and humanities)	Imperial (history and humanities)	Sacrificed (history and humanities)
Concentrate (history and humanities)	Improvisation (history and humanities)	Sadness (history and humanities, music)
Constant (history and humanities)	Incremental (historical and humanistic)	Sensitive (history and humanities)
Controllable (history and humanities)	Intense religiosity (cinema, painting)	Sentimental (history and humanities, literature, music)
Creator (history and humanities)	Interstitial (literature)	Single (history and humanities, painting)
Critical (history and humanities)	lyric (literature)	Singular (cinema, history and humanities)
Cultism (literature) Catholic (painting)	Metamorphic (history and humanities)	Spiritual (history and humanities)
Cultural assimilation (history and humanities)	Militant (history and humanities)	Stubborn (history and humanities)
Curvilinear reasoning (history and humanities)	Mimetic (history and humanities)	Subjective (literature)
Diachronic (cinema)	Miscegenation (literature)	Subversive (cinema)
Diaspora (history and humanities)	Moral (painting) Ancient (story)	Sync (cinema) Theology (history and humanities, literature)
Dogmatic (history painting)	Morphological (history and humanities)	Utopian (history and humanities)
dream Themes (painting)	Movement (history and humanities)	Water (history and humanities)
Ecumenical (history and humanities)	Mystery (history and humanities, music)	

Sources: Almeida (1995), Baguet (1999), Bello (2009), Borja (2005), Cabral (2003), Cademartori (2006), Cardoso & Catelli (2009), Castagna (2005), Costa (1998), Domingues (2000), Grosso (1999), Lemi re (2006), Louren o (1994, 2001), Martins, Sousa & Cabecinhas (2006), Matos-Cruz (1999), Moreira (2005), Nascimento (2009), Neto (2005), Netto, Dias & Mello (2003), Ngai (1999), Ono (2004), Pereira (1999), Quadros (1999), Rago (2006), Ribeiro 82004), Rodrigues & Devezas (2009), Rossini (2005), Salvo (2006), Silva (1999).

Table 7. Cultural aspects with a neutral nature concerning the Lusophone space (in parentheses the thematic track of the literature review from which the cultural trait was retrieved is indicated).

Portuguese positive aspects and Lusophone neutral aspects (the distinction between positive, neutral and negative aspects was done by the authors).

3.3 Study II - Matching selected cultural traits with product personality dimensions

The cultural traits obtained from study I were corresponded by the authors to Jordan’s (2000) product personality attributes. Each cultural trait was assigned to one or more of the product personality dimensions (Table 8) and a matrix was prepared that translated the cultural traits into personality dimensions. The personality dimensions that resulted are presented in Tables 9 (results of subjective transfer of the Portuguese cultural traits identified in study I) and 10 (results of subjective transfer of the Lusophone cultural traits identified in study I).

kind – somewhat kind – neither kind or unkind – somewhat unkind – unkind
honest – somewhat honest – neither honest or dishonest – somewhat dishonest – dishonest
serious minded – somewhat serious minded – neither serious minded or light hearted – somewhat light hearted – light hearted
bright – somewhat bright – neither bright or dim – somewhat dim – dim
stable – somewhat stable – neither stable or unstable – somewhat unstable – unstable
narcissist – somewhat narcissist – neither narcissist or humble – somewhat humble – humble
flexible – somewhat flexible – neither flexible or inflexible– somewhat inflexible – inflexible
authoritarian – somewhat authoritarian – neither authoritarian or liberal – somewhat liberal – liberal
driven by values – somewhat driven by values – neutral – somewhat not driven by values – not driven by values
extrovert – somewhat extrovert – neither extrovert or introvert – somewhat introvert – introvert
naïve – somewhat naïve – neither naïve or cynical – somewhat cynical – cynical
excessive – somewhat excessive – neither excessive or moderate – somewhat moderate – moderate
conforming – somewhat conforming – neither conforming or rebellious – somewhat rebellious – rebellious
energetic – somewhat energetic – neither energetic or non energetic – somewhat non energetic – non energetic
violent – somewhat violent – neither violent or gentle – somewhat gentle – gentle
complex – somewhat complex – neither complex or simple – somewhat simple – simple
optimist – somewhat optimist – somewhat pessimist – pessimist

Table 8. Product personality dimensions (Jordan 2000).

Upper product personality attribute	Lower product personality attribute
Kind	Neither kind or unkind
Honest	Somewhat dishonest
Somewhat fun	Somewhat serious
Bright	Somewhat dim
Stable	Somewhat unstable
Humble	Neither humble or narcissistic
Flexible	Inflexible
Liberal	Authoritarian
Driven by values	Somewhat driven by values
Somewhat extroverted	Somewhat extroverted
Naïve	Somewhat cynical
Moderate	Excessive
Somewhat conforming	Somewhat rebellious
Energetic	Somewhat energetic
Gentle	Somewhat violent
Simple	Complex
Optimistic	Somewhat pessimistic

Table 9. Product personality attribute ranges resulting from translating the Portuguese cultural traits identified in study I (transfer performed by the authors).

Upper product personality attribute	Lower product personality attribute
Kind	Neither kind or unkind
Honest	Somewhat dishonest
Somewhat fun	Somewhat serious
Somewhat bright	Somewhat dim
Stable	Somewhat unstable
Humble	Neither humble or narcissistic
Flexible	Inflexible
Liberal	Somewhat liberal
Driven by values	Somewhat not driven by values
Somewhat extroverted	Somewhat introverted
Naïf	Somewhat cynical
Moderate	Excessive
Neither conforming or rebellious	Somewhat rebellious
Energetic	Somewhat energetic
Gentle	Somewhat gentle
Simple	Complex
Optimistic	Neither optimistic or pessimistic

Table 10. Product personality attribute ranges resulting from translating the Lusophone cultural traits identified in study I (transfer performed by the authors).

3.4 Study III – Correspondence of product personality dimensions to product attributes

Some examples of objects comprised of four clothes pressing irons and eight coffee machines were chosen (Fig. 9), in order to make an analysis of these objects with regard to the Product Personality Assignment technique by Patrick W. Jordan (2000). The assignment of personality attributes was carried out by a panel of eight third year undergraduate industrial design students (aged from 20 to 23 years old) that rated each object in terms of the personality dimensions in a 5 point Lickert scale ranging from the personality attribute to its opposite (e.g. kind – unkind) and three intermediate ratings (e.g. somewhat kind, neither kind or unkind, somewhat unkind), according to Table 3. The eight raters analysed the objects grouped in three sets, one of clothes pressing irons and two of coffee machines. The Kendall coefficient of concordance was used to assess the consistency of ratings among the panel.



Fig. 9. Products that were used as a basis for the product personality assignment survey performed as part of study III.

The ranking attained by combining the judgement of the eight raters within the personality pairs of each set of four products is shown in Tables 11 to 13, accompanied by the result of the Kendall coefficient of concordance for each dimension and set rated.

Personality Attribute	Ranking	Personality Attribute	Significance
Kind	B - C - A - D	Unkind	Significant at 95% c.i.*
Honest	C - B - A - D	Dishonest	Not significant
Serious	C - B - D - A	Light-hearted	Significant at 99% c.i.*
Bright	B - C - A - D	Dim	Significant at 95% c.i.*
Stable	C - B - A - D	Unstable	not significant
Narcissistic	C - D - A - B	Humble	Significant at 99% c.i.*
Flexible	B - A - D - C	Inflexible	not significant
Authoritarian	C - D - A - B	Liberal	Significant at 99% c.i.*
Driven by values	C - B - A - D	Not driven by values	Not significant
Extrovert	A - D - B - C	Introvert	Significant at 95% c.i.*
Naïve	B - A - C - D	Cynical	Significant at 95% c.i.*
Excessive	D - C - A - B	Moderate	Significant at 95% c.i.*
Conforming	C - B - D - A	Rebellious	Significant at 95% c.i.*
Energetic	A - B - D - C	Non energetic	Significant at 99% c.i.*
Violent	D - C - A - B	Gentle	Significant at 99% c.i.*
Complex	C - D - B - A	Simple	Not significant
Pessimistic	C - D - B - A	Optimistic	Significant at 99% c.i.*

* - c.i. - confidence interval

Table 11. Aggregate ranking of the four clothes pressing irons depicted in Fig. 9 for each of the 17 personality dimension pairs and calculation of significance of agreement (based on Kendall correlation coefficient, Siegel & Castellan 1988).

Personality Attribute	Ranking	Personality Attribute	Significance
Kind	B - A - C - D	Unkind	Significant at 99% c.i.*
Honest	B - C - A - D	Dishonest	Significant at 99% c.i.*
Serious	B - D - C - A	Light-hearted	Significant at 99% c.i.*
Bright	B - A - C - D	Dim	Not significant
Stable	B - C - A - D	Unstable	Significant at 99% c.i.*
Narcissistic	D - C - A - B	Humble	Significant at 99% c.i.*
Flexible	A - B - C - D	Inflexible	Significant at 95% c.i.*
Authoritarian	D - C - A - B	Liberal	Significant at 95% c.i.*
Driven by values	B - C - D - A	Not driven by values	Significant at 95% c.i.*
Extrovert	A - C - D - B	Introvert	Significant at 99% c.i.*
Naïve	B - A - C - D	Cynical	Significant at 99% c.i.*
Excessive	D - C - A - B	Moderate	Significant at 99% c.i.*
Conforming	B - C - D - A	Rebellious	Significant at 99% c.i.*
Energetic	A - C - D - B	Non energetic	Significant at 95% c.i.*
Violent	D - A - C - B	Gentle	Significant at 95% c.i.*
Complex	D - C - A - B	Simple	Significant at 99% c.i.*
Pessimistic	D - B & C - A	Optimistic	Not significant

* - c.i. - confidence interval

Table 12. Aggregate ranking of the first set of four coffee machines depicted in Fig. 9 for each of the 17 personality dimension pairs and calculation of significance of agreement (based on Kendall correlation coefficient, Siegel & Castellan 1988).

Personality Attribute	Ranking	Personality Attribute	Significance
Kind	D - C - B - A	Unkind	Significant at 99% c.i.*
Honest	B - C - D - A	Dishonest	Significant at 95% c.i.*
Serious	B - A - C - D	Light-hearted	Significant at 99% c.i.*
Bright	B - C - D - A	Dim	Not significant
Stable	B - C - D - A	Unstable	Significant at 99% c.i.*
Narcissistic	A - D - B - C	Humble	Significant at 95% c.i.*
Flexible	D - C - B - A	Inflexible	Significant at 99% c.i.*
Authoritarian	A - B - C - D	Liberal	Significant at 99% c.i.*
Driven by values	B - A - C - D	Not driven by values	Significant at 95% c.i.*
Extrovert	D - C - A - B	Introvert	Significant at 99% c.i.*
Naïve	C - B - D - A	Cynical	Significant at 99% c.i.*
Excessive	A - D - C - B	Moderate	Not significant
Conforming	B - C - A - D	Rebellious	Significant at 99% c.i.*
Energetic	A - D - C - B	Non energetic	Not significant
Violent	A - B - D - C	Gentle	Significant at 99% c.i.*
Complex	A - B - C - D	Simple	Significant at 99% c.i.*
Pessimistic	B - A - C - D	Optimistic	Not significant

* - c.i. – confidence interval

Table 13. Aggregate ranking of the second set of four coffee machines depicted in Fig. 9 for each of the 17 personality dimension pairs and calculation of significance (based on Kendall correlation coefficient, Siegel & Castellan 1988).

Materials	metals	wood	ceramics	plastic	ecological
Colour	primary	pastel	metallic	warm	cold
Shape	straight	organic	coherent	contrasting	functional
Graphic markings	geographical	decorative	instructions	patterns	reliefs
Archetype	conventional / traditional	minimalist	luxury	utilitarian	adaptable
Morphology	single part	few parts	dependency between parts	modularity	many interconnected systems
Ease of use	simple and intuitive	complex, yet intuitive	neither easy or difficult to use	not very complex, but difficult to use	very complex and difficult to use
Production Process	handicraft	rudimentary industrial	contemporary industrial	manufacturing by high technology	user fabrication
Technological Sophistication	moving parts (manual)	electrical technology	electronic technology	information technology	nanotechnology and biotechnology
Multiple functionality	single function	few functions	some functions	various functions	many functions
Size	very small	small	medium	great	very large

Table 14. Product technical dimensions each broken down into five categories, that were considered in study III.

3.5 Study IV – Establishing the link between product personalities and product characteristics

The 12 objects depicted in Fig. 9 were further characterized, by the authors, in terms of their product attributes according to a series of dimensions. These included materials, colour, shape, graphic markings, archetype, morphology, inferred ease of use, manufacturing process, technological sophistication, multiple functionality and size. The dimensions that were used to characterize the 12 objects involved in study III are shown in Table 14.

As a result of study IV, two product attribute lists were attained, one concerning the transference of Portuguese cultural traits to product properties and the other one concerning the transfer of Lusophone cultural traits (Table 15).

Product technical dimension	Culturally induced Portuguese product profile	Culturally induced Lusophone product profile
Colour	Cold	Cold
Shape	Straight, coherent, contrasting	Straight, coherent, contrasting
Graphical markings	Decorative, instructions	Decorative, instructions
Archetype	Minimalist	Minimalist
Multiple functionality	Single function	-
Size	Small	Small
Ease of use	-	Complex, yet intuitive

Table 15. Product attributes attained as a result of study III.

3.6 Study V – Generation of product concepts and their validation

Various living room furniture concepts were generated based on two product specifications that took as starting points the results presented in Table 15 and that were enlarged considering anthropometric (Panero & Zelnik, 2002) and other requirements. These initial concept sketches were evaluated by the authors, with respect to criteria derived from the specification and were also subjected to the scrutiny of 21 second year undergraduate industrial design students (aged from 19 to 22 years old). These did not however show significant agreement in terms of their preference among the concepts generated. The authors’ evaluation matrix (based on an expanded requirements list developed within the design process) led to the detailed development of the concepts depicted in Figures 10 and 11, respectively, a product line based on the Portuguese cultural traits, named “Vale”, and one based on the Lusophone ones, named “Império”.

In order to test the effectiveness of the approach reported in this chapter, the respondents in this study were asked to identify, from the concepts generated, which of those had either Portuguese traits, Lusophone traits or none. These results are shown in Table 16.

Furniture concept	Portuguese traits	Lusophone traits	No Portuguese or Lusophone traits
“Império” - Lusophone A	8	8	5
“Bloco” - Lusophone B	3	9	9
“Flex 2” - Lusophone C	2	4	15
“Vale” - Portuguese A	5	6	10
“Leveza” - Portuguese B	7	7	7
“Flex” - Portuguese C	2	8	11

Table 16. Survey seeking the validation of the results of the studies reported in this chapter (21 respondents – second year undergraduate industrial design students).

The results of the survey do not lead to consider that the results convey clearly identifiable cultural traits associated with the Portuguese and Lusophone cultures, although these vary from product concept to product concept.



Fig. 10. Renders of “Vale” living room furniture line based on the Portuguese cultural traits and their corresponding product technical attributes (designed by the second author).

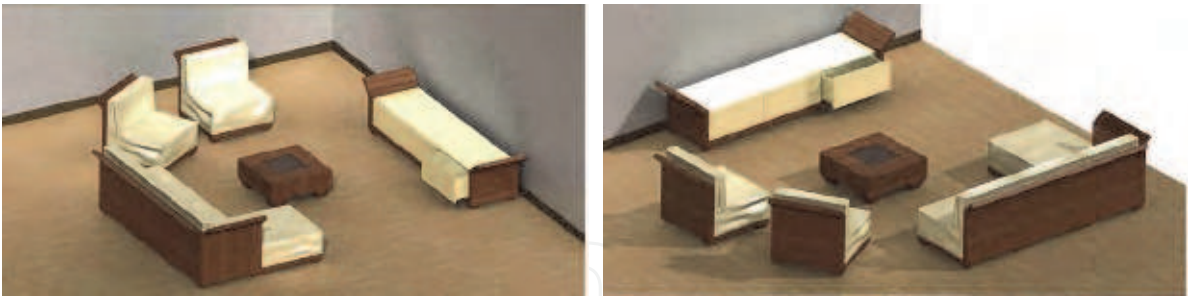


Fig. 11. Renders of “Império” living room furniture line based on the Lusophone cultural traits and their corresponding product technical attributes (designed by the second author).

3.7 Discussion of the results of the five studies presented

In the second part of this chapter, cultural traits were the starting point to reach at the product profiles that were used as the basis for the design of two furniture lines. The scope of the work reported is not limited to furniture and is deemed applicable in a wider scope, considering its genesis and methodology, based on a literature review of cultural traits, taking into account the personalities of consumer products and consulting industrial design students. Advancing the knowledge on the transfer of cultural traits to product design features may require further inquiry, since the projects reported in this chapter did not lead to conclusive results towards accepting or rejecting the hypothesis which was presented in the methods

section of this chapter. The adequateness of the use of the product personality assignment technique in supporting this transfer could not be determined conclusively, as the results of the panel convened to assess the cultural identity of the product concepts produced was not conclusive, lacking agreement among the group.

4. Conclusion

One of the underlying assumptions for this chapter was that there is a space yet to be filled by a culturally inspired design current to take the space of design production with a Lusophone flavour, for international dissemination. Another underlying assumption is that design may be inspired by culture, and a direct transfer of cultural traits to product attributes may be pursued, with the support of product personality attributes, as a mediator. The results of both streams of analysis (Fig. 1) presented in this chapter were found not to match entirely. The product feature profiles encountered in the sampled Lusophone design production (first part of the chapter) do not match entirely the product feature profiles obtained from transferring selected cultural traits (positive and neutral) to technical features. This suggests that there is a space yet to be filled by a culturally inspired design current to take the space of design production with a Lusophone flavour, for international dissemination. This mismatch also suggests that culturally inspired design may yield novel design concepts and trigger an array of new proposals that cater to varying tastes and sensibilities. This may contribute to more visibility of designs from particular regions of the globe, opposing the paradigm of mainstream design production, according to the traditional and well established design schools and currents. In a globalized world, culturally inspired design carries the promise to bring more cultural inclusion into the design discourse and to promote added differentiation of consumer choice of design objects.

5. Acknowledgment

The research projects presented in this chapter were developed as Master of Science thesis in industrial design engineering by the second and third authors, supervised by the first author. A selection of results from these projects have previously appeared in Simão and Coelho (2011) and Silva and Coelho (2011), published by Common Ground.

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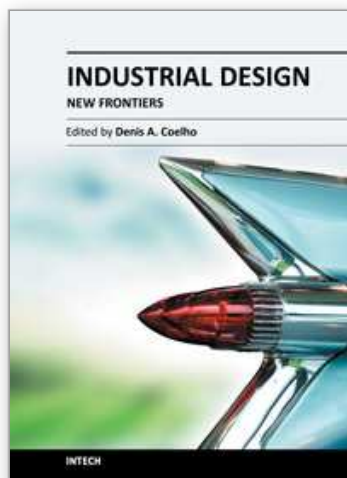
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A new breed of modern designers is on the way. These non-traditional industrial designers work across disciplines, understand human beings, as well as business and technology thus bridging the gap between customer needs and technological advancement of tomorrow. This book uncovers prospective designer techniques and methods of a new age of industrial design, whose practitioners strive to construct simple and yet complex products of the future. The novel frontiers of a new era of industrial design are exposed, in what concerns the design process, in illustrating the use of new technologies in design and in terms of the advancement of culturally inspired design. The diverse perspectives taken by the authors of this book ensure stimulating reading and will assist readers in leaping forward in their own practice of industrial design, and in preparing new research that is relevant and aligned with the current challenges of this fascinating field.

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