

Culture-inspired design principles, methods and tools in current products

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Every nation has their unique and rich cultural background which is a valuable resource of inspiration. How to apply this resource into product design will be discussed in this study. We will also review previous work in this area. This paper first reviews design guidelines and principles in culture-based design literature and then conducts case studies to see the applications of cultural elements in culture-inspired products. The cultural characteristics and design rules were then categorized and analyzed. Therefore, the aims of this study are: (1) to classify cultural elements from product design applications, (2) to identify and interpret the design principles, methods, tools being used and (3) finally to deduce culture-inspired design guidelines based on Grounded Theory. The research contribution has been three-fold: firstly, we classified cultural elements into three categories: artefacts, nature, and spirit by studying the literature. Some design guidelines are found, but they are quite vague for designers to apply. Secondly, from our case studies of cultural products in the market, we created mappings between classified culture elements and the corresponding design principles, methods and tools.. Based on this mapping, a set of design guidelines for each type of culture element has been developed. This research is an on-going PhD work, therefore our future work is to evaluate and verify our proposed design guidelines and develop them further.

Key words: culture-inspired, product design, culture characteristics

1. Introduction

Consumers buy products for different reasons, including practical functions of the product, cultural meanings, aesthetics values, and emotional aspects. Emotional aspects of a product play a key role in pushing consumers to buy a specific product as it elicits consumers' emotions and evokes effective resonances. In the 1970s, the speedily developing countries embraced culturally oriented goods and utilized design as a means to attract consumers. Under this trend, culturally sophisticated products were preferred rather than technological attributes in the 1980s [1]. In modern production, functions and technology are essential features, so companies and design studios are using symbolic values in product design to achieve a good competitive position among markets [2]. For example, some products which integrated cultural characteristics very well have won world famous design awards; they also show a potential design trend in the market. In this observation, it is clear that designers have begun to apply exotic or national cultural elements and not just simply copy but to transfer these elements into a more creative and sophisticated product design. Similarly, some studies also show that experiential perspectives of consumers are neglected in the past, and it has been found that consumers are increasingly buying products for symbolic meaning, evoked feelings of pleasure, enjoyment and fantasies, imagery, and aesthetic demand more than just for

practical functions [3,4,5]. In summary, transforming cultural elements into product design is a great trend in product development.

Culture resources and information have been applied into branding design, product design and even fashion design. For culture-based branding, Holt (2004) suggests cultural branding principles for managers who want to build up an iconic brand to differentiate themselves to other competitors and also express their identity [6]. Moreover in the fashion design, a study concludes that aesthetic presence, psychological satisfaction, social attitude and historical revival in the cultural context are the most important factors which inspire designers in creating new fashion, instead of market factors [7]. It points out that designers could be inspired by art movement, historic garments, political and religious ideologies, scientific innovation, and subcultural style of dress.

As for product design, cultural characteristics are required to be taken into account in design process to reach the goal of social synchronization. A culture-inspired product may have a very good market response in certain cultural context, and a poor market performance in other cultural context. When products can stand for themselves without extra explanation, the design skill of choosing proper sociocultural signifiers is as important as functions and aesthetic attraction [8]. Furthermore, the selected cultural meaning which is infused into products has to be proper and pleasing combination with products according to systematic cultural knowledge and context. This way makes the products differentiate themselves from others and have their own value [4]. In the same vein, Scott (2004) suggests that cultural-products lead to make the differences in the global market instead of uniformity, especially the creation of aesthetic and semiotic content [9]. In addition, another study also claims that products can be a communicator when it is semantically applied to make a connective emotion with users [10]. These emotional response systems are identified into senses, fun, cuteness, familiarity, metonymy, and colour. While functionality and usability have been regarded as the basic of a product, the intangible emotion or value of a product can even lead to the faith of customers to a company [11]. Based on these studies, products now are designed not only for the need, usability, and function but emotional arousing, humour, cultural meaning and context more attractive to users [12]. Some studies have reported their design models based on cultural layers [13,14].

To sum up, there is some research investigating the topic of applying cultural elements into various design applications. However, there are still few papers discussing design rules for applying cultural characteristics. Therefore, in order to develop a set of design methods and tools for culture-inspired product design, this research aims to establish a current status of the related research and identify existing design methods and tools being used. The research questions are (1) What are key and transferable culture-inspired characteristics/ elements in existing culture-inspired products? (2) What are the design guides that have been applied to culture-inspired products in each cluster of cultural elements? (3) What are potential guides of designing culture-inspired products which can be explored in the future?

2. Method

Our research methods include a literature review and case studies. In the literature survey conducted in 2012, the papers which were related to culture and design were searched by keywords, such as cultural product, cultural design, and product design. The databases searched were the Web of Knowledge, Summon library, ACM Digital

Library, and IEEE/IET Electronic Library. We also searched journals related to design: *design issues, design studies, Design Management Journal, International Journal of Design...* and journals related to culture: *Harvard Journal of Asiatic Studies, International Journal of Cultural Studies, International Journal of Cultural Policy*, as well as other culture related journals, *Design Management Journal, SAGE, Creativity and Innovation Management*, and also related design conferences. In all, 21 books, 16 conference papers and 30 journal papers were found to be highly related to this study. At the same time, specific design case studies for deducing design rules and cultural characteristics were collected from current products of Museum gift shops, award-winning products, and design studios. In total, forty-five design cases have been collected and studied. The research resources include National Palace Museum, iF product award, Taiwan goods, Taiwan International Cultural and Creative industry Expo, google image search, fashion brand (Dior, Jean-Paul Gaultier).

3. Results

3.1 Research gap existing

According to the literature review, products with emotional or cultural-inspired design are more and more popular in markets and attractive to customers. However there are rare studies discussing about cultural symbols and design rules that have been applied in existing culture-inspired products. So, there exists a research gap of synthesizing current research and practices on what key cultural characteristics and their classifications are, and how they have been applied. In the meanwhile, what cultural characteristics have not been applied, and what kinds of products have not been applied to will be revealed as well.

3.2 Multiple views of cultural characteristics

The definition of culture from Oxford and Cambridge dictionary is the way of life which includes customs, beliefs and social behavior of a specific group of people or the arts and other displays of human intellectual achievement. Culture is also a notion derived from nature [15] and it originates from the tilling of the land, and then refers to the cultivation of mind and intellect through education in the sixteen century. In the nineteenth century, a wide meaning of culture denotes not only intelligent development but also the whole way of life, collective customs and achievements of a people or society. Culture also means art achievements, ways of life or costumes, and intelligent development which is parallel to layers of culture stated by Schein. Schein (1985) proposed three levels of culture from visible artifacts, mid-level espoused values, and invisible basic underlying assumptions [16]. In the artefact level, it contained visible organizational structures and processes which people can know the culture clearly and have emotional impact immediately, such as architecture, languages, technology and products, artistic creations, style of fashion or manners or emotional display, stories, lists of values, rituals, and ceremonies. In the level of espoused beliefs and values, strategies, goals, and philosophies are included; whereas unconscious, beliefs, perceptions, thoughts, and feelings are included in level of basic underlying assumptions. In contrast, Hatch (1993) adds “symbols” into his cultural dynamic model, so there are four elements of culture which are artifacts, values, symbols and assumption in this cultural dynamics Model [17]. The model is a dynamic circle rather than a stable linear process from Schein’s model. Furthermore, he illustrates the relationships between every layer which are 1) realization between values and artefacts, 2) symbolization between symbols and artefacts, 3) interpretation between symbols and assumptions, and 4) manifestation between assumption and values. In other words, every of these cultural elements are correlated to each other. People’s

value can be realized and transformed by artifacts; symbols can be abstracted from the concept or meaning of artifacts; assumptions of people’s feelings and thoughts are made by interpreting symbols; values are therefore manifested from assumptions, and vice versa. In this sense, a design process can be deduced as: before designing a product with cultural meanings, it is suggested to understand the cultural context, and then to interpret by transforming the intangible cultural values or tangible cultural images into design process. Besides, Throby (2001) refined the meaning into two major definitions. One is “anthropological or sociological framework to describe a set of attitudes, beliefs, mores, customs, values and practices which are common to or shared by any group”, so that the group of people can discriminate themselves from other groups; the other definition is certain activities, which are related to intellect and spirit, and include creativity, symbolic meaning and intellectual property in human life [18]. In other words, culture is activities/ characteristics of a certain group of people who know the social context. Although the definitions of culture proposed by previous studies tend to be applied to organization or economy, they still laid the foundation for layers and elements of culture which is applicable to design.

In addition, He (1992) as cited in Leong (2003) divided culture into three structural levels in an inverted triangle called the spatial perspective of culture. At the top of the inverted triangle is “outer tangible level” and it is the broadest part of the inverted triangle. In the middle level of the inverted triangle is “mid behavioral level” and at the tip part is “inner intangible level” [13]. In particular, a cultural definition which is more specific related to design is given by the preface of the Universal Declaration on Cultural Diversity whose definition of culture is “the set of distinctive spiritual, material, intellectual and emotional features of society or a social group, in addition to art and literature, lifestyles, ways of living together, value systems, traditions and beliefs”. The cultural value can be manifested by a product, a producer, the process it is produced, or the way it influences regional identity [18]. Accordingly, an overview about definition of culture is outlined in Table 1.

Table 1. Definitions of culture

Literature review	Amounts	Key contents	Reference
		· Visible/ Artefacts · Values · Invisible assumptions	[16]
		· Tangible · Behaviour · Intangible	[17]
		· Artefacts · Values · Assumptions · Symbols	[18]
Definition of culture	5	· Values/beliefs/ customs · Activities	[13]
		· Spiritual · Material	[19]
		· Visual · Manner · Philosophy	[21]

Above all, some researchers propose their culture-inspired product design based on these cultural definitions. For example, cultural product design model [14] and culture-orientated design model [20] which classify cultural characteristics by three cultural layers [13,16] and transfer these cultural factors into product design. In the same

vein, Zheng (2010) classifies applications of cultural references on product design into visual, manner and philosophy layers [21]. These layers can be referred to the cultural layers proposed by He (1992).

Furthermore, much research provides some classified cultural resources which inspire them when designing a product. For example, in the fashion design field, sources of inspiration are categorized into five parts [22], and four of them are based on cultural references: garments, historic and ethnic costumes, artifacts, and cultural connotation from nature. Besides, Chow and Jonas (2010) regard existing artefacts as knowledge sources and as being highlighted for the forecast of new products [23]. We have used some of these categories in our classification. Likewise, another study put emphasis on the role of culture as resources of creative intelligence which can make itself different from others in the development in economy. Three models are proposed by this study including (1) China pentagram, which is a combination of humanity, intelligence, nature, and creativity; (2) Chinese checker, which is a social-based innovation model covering equality, teamwork, synergy, interactivity, win-win, and leap; and (3) long economy which shows the relationship between economy and culture [24]. The cultural resources can be indigenous traditions and customs, such as festivals, carnivals, sports event, and spectacles [9]. One study used “nostalgia” as a resource of creativity, and three key historical events are emphasized: revolutionary past, imperial China, and Shanghai which is shortly colonized [25]. The author who divided materials into natural and cultured mainly introduced Indian culture. Some examples are given as the cultural approach to design, such as the gold, religious ceremony, annual festivals, philosophy, Yoga, Pantheon, and the settlement of a house [26].

From the literature review, it can be concluded that culture is roughly identified by visibility/ tangibility and invisibility/ intangibility. To be more specific, visibility refers to materials or artifacts, while invisibility means philosophy or spirit. Furthermore, materials are divided into nature and cultured which means human-made. However, most of the cultural characteristics identified from the literature review are very general. As a result, a research gap is found that a further specific classification of cultural characteristics is needed to give a guide to applying cultural resources.

Based on these studies, a classification of cultural characteristics is defined as artifacts, nature and spirit. For artifact category, the further categories stem from the museums’ categories. The categories of museums are collected from British Museum, Louvre, National gallery of art, Museum of London, MoMa, Glencoe and north lorn folk museum, National Palace Museum, National Museum of Korea, Tokyo National Museum. Thus, sub-categories of artifacts are artistic creations (including works on 2D and 3D materials, textile and costumes, and art style...), sculptures, living utensils (including furniture, lighting, dining...), social life(myths and stories, observable rituals and ceremonies, traditions, religion, festivals...) , architecture (historical places, temples, churches, houses, palaces, windows, doors...), technology(transportation, compass, vessels, prints, military...), pastimes(performance art, chess...), sports (Chinese kungfu, Indian Yoga...) and Music(instruments,...). In nature aspect, it includes landscape, seascape, local flora and local fauna. In spirit aspect, it includes philosophy symbols and colour meanings. So, for the first research question, a classification of culture which would be applied to culture-inspired products is identified (Table 2).

Table 2. The classification of cultural characteristics.

Cultural classification		Examples
Artefacts	1. Artistic creation	Calligraphy
		Seal cutting
		Traditional painting
		Paper cutting
		Fan
		Origami
		Porcelain
		Lacquer ware
		Ceramic
		Bronze
	Sculpture	
	2. Living utensils	Living utensils
		Food
	3. Social life	Fashion
		Religious figure
	4. Architecture	Historical places
Wood joinery		
5. Technology	Components	
	Print/ printing tool	
6. Pastimes	Military	
	Opera	
7. Sports	Kungfu	
	Basketball	
8. Music	Instruments	
	Musical note	
Nature	1. Landscape	High land
	2. Seascape	Great Barrier Reef
	3. Local flora	Bamboo/ Flowers
	4. Local fauna	Animal patterns
Spirit	1. Philosophy symbols	Dragon
	2. Colour meaning	Yellow

3.3 The applied design principles, method and tools

3.3.1 Summarized design principles, methods and tools from literature review

Based on the spatial perspective of culture, Leong (2003) developed a matrix spatial structure of culture that divided culture into four quadrants [13]. The vertical axis is from material to immaterial and the horizon axis is from thoughts to behaviour. In particular, his research shows a connection between culture and design, and views culture as the core knowledge to produce products with cultural value. Furthermore, Lin (2007) proposes a framework [14] which shows a correspondence between cultural layers and design features. Hence, a cultural product design model is illustrated to show a design process of applying cultural features. This model provides designers a thinking direction to understand more deeply the cultural meaning of the original objects, and then designing a product with local cultural characteristics to make the product conspicuously appreciated by consumers. Moreover, Moalosi (2007) proposes a cultural- oriented design model to help designers in creating products with Botswana’s cultural references in initial stages of the design process [20]. Designers are inspired by sources coming from local culture, and based on these cultural characteristics designers integrate or transit them into their product design. In these design processes, the use of Moalosi’s culture-orientated design model and Lin’s cultural product design model tend to give products a narration to make a relation between users and cultural environment.

Some research focused on design procedures and processes. Following from Teng and Chuang’s viewpoint (2011), a procedure of observation and design of cultural experience is proposed that utilizes simile or metaphor to create cultural products [27]. Designers’ experience and observation from videotape and photos in trips are focused in the procedure in order to integrate traditional cultural figures and emotions in products, and design principles such as decomposition are applied in cultural produce design. Another study [28] provided three processes of how to create symbolic value in products which are absorption, sign production and sign adoption. In

the absorption process, the link between form and meaning of a product can be built up in terms of ample understanding of a culture and its conventions. Followed by regarding products as sign productions, the chosen cultural expression and new meaning are coordinated together with a new form of product. For instance, changing of colour, shape and style. are ways to transfer or produce a new meaning of a product. The outcome of this process gives a product new meaning which makes social interaction between consumers and connections between products and consumers. The last process, sign adoption, is a collective manipulation of the meaning of objects, which means that it is a corporation by not only designers, but intermediaries such as the press, journalist, or experts. These people who have powerful influences on consumers promote the cultural connotation that products carry. So, the symbolic value is created when consumers are associated with the products which are carrying meanings of cultural milieus to show their individual and social identity. Another cultural and creative product design mode [29] shows a construction from analysing cultural elements which are based in cultural layers, selecting cultural elements which are suitable for products, integrating meaningful cultural attributes with products by metaphor, metonymy, satire, simile, and analogy.

From aspects of general design rules, the basic visual elements of culture resources in terms of line, shape, form, space, texture, and colour could be considered as transformational factors [30]. To be more specific, in the scope of design rules, design rules, such as imitating or deconstructing cultural symbols, and following the structures and functions of ancestor's creation, are provided to inspire designers [31]. From this viewpoint, they also suggested some design rules such as transform, abstract, and integrate traditional cultural symbols. Another study provides three types of transfer ways which are local, regional, and long distance. The details about the design process of transfer is 1) to collect existing artifacts from local sources, 2) to collect similar artefacts from regional sources, 3) to analyze these sources by Peircean abduction which is hunch, form, metaphor, context, scenario, and principles, 4) to interpret these signs into shapes, contexts and rules, and then 5) to evaluate the products by the users. Particularly, user experiences in different culture are emphasized in the design process. Designing products with culturally-rich user experiences which are balanced by local culture and global lifestyles is the key point of their design processes [23]. Likewise, another translation process of cultural patterns to new product design is divided into four levels: to regenerate style characteristics, to transform style characteristics based on deeper understanding of forms, to give new form in terms of user preference, and to create metaphor. So, they conclude that a design process is progresses from explicit to implicit features [32]. On the other hand, a problem solving method, TRIZ, is applied as a tool to design cultural product in a few studies [33,34]. Furthermore, Krippendorff (2006) states more specific instructions of reframing and combination which can apply to design. He suggests 6 ways of reframing which includes transformation, using alternative metaphors, finding analogies, employing various theoretical perspectives, eliciting various stakeholders' conceptual frameworks and translating a problem or design into different media. Especially, he gives 10 ways of transforming, such as (1)modify dimension to their limits, systematically distorting, (2) morphing (3) turning it inside out (4) unifying or decentralizing its organization, (5) remove as many of its features as possible or adding as many features as can be thought of, (6) making visible what it covered or hiding what it showed, (7) putting it into background when it is prominent or into the foreground when it is hidden, (8) modularizing it into freely combinable components or fusing multiple technologies into one whole multipurpose unity, (9) replacing its materials by yet untried ones, (10) placing it in new contexts to find new uses [35]. The existing culture-based design models and processes are summarized in Table 3

Table 3. Studies of design model and processes

Literature review	Amounts	Key contents	Reference
Design Models/ processes	13	· Line, shape, form, space, texture and colour	[30]
		· A matrix spatial structure of culture	[13]
		· A cultural- oriented design model	[14]
		· A procedure of observation and design of cultural experience	[27]
		· Absorption, sigh production and sigh adoption	[28]
		· The construction of cultural and creative product design mode	[29]
		· Imitating, deconstructing cultural symbols and following the structures and functions	
		· Transform, abstract, and integrate	[31]
		· Local, regional, and long distance	[23]
		· To regenerate, to transform, to give a new form and to create metaphor	[32]
		· TRIZ	[33,34]
		· Transform and Combinatory	[35]

Moreover, for semantic elements of culture resources, Chang and Hsu (2011) analyzed mass-produced and award-winning products by cultural elements, product representation [35], and design techniques. In the aspect of cultural elements, Chinese Calligraphy, Chinese brush paintings, utensils, religion, and philosophy are included. In the aspect of product representation, external images, comprehensive impression of theme, detailed decorations, operation methods, and functional symbols are contained. In regard to design skills, they are simile, metaphor, metonymy, making direct/indirect use of cultural elements. Also, Gordon (1986) gave a preliminary classification of souvenirs into pictorial images, piece-of-the-rock, symbolic shorthand, markers, and local product. Postcards, cards, or snapshots, photographs books, and sketches are included in the type of pictorial images. Nature materials (such as rocks, grasses, deer heads, sperm whales teeth, pine cones...etc.) and stuffed toys of the shape of local animals are in the type of piece-of-the-rock. Minimized architectures (such as Eiffel Tower, Empire State Building) with or without extra functions (like a thermometer) are in the type of symbolic shorthand. Products which is marked or imprinted (like T-shirt, matchbook cover, or sugar wrapper) are in the type of markers. The last one is local products which are including native food, clothing, and crafts. The boundaries between these types are not absolute. A product may be classified in more than one type. Even though it is a classification of different types of souvenirs, it also implies some ways of applying local characteristics (culture) in products. For examples, direct usage of pictures or images of native scenery, native animals, buildings, are utilized on two-dimension or three-dimension products. Some are inspired by indigenous nature materials, such as rocks [36].

3.3.2 Summarized design principles, methods and tools from current products

In the aforementioned literature, the specified design rules such as imitating, deconstructing, following structure or functions, transforming, abstracting, integrating, combinatory, simile, metaphor are highlighted. But they are not covering the spectrum of all transformations. Therefore, forty-five samples of culture-inspired products for our case studies are collected from iF design award, Taiwan international cultural and creative industry expo award, gift shops of National Palace Museum, google image search, and design websites to find out more applicable design rules. According to the current products from our case studies, most of the cultural characteristics are applied to products by image transformation in 2D and 3D, and parts of them are by simplified

figures, colour changing, proportion changing and replacing materials. Also, some of these transformations are applied to the form of traditional objects, such as application of “foldable” form of fan to a foldable table, or form of a traditional rice bucket to a rice cooker. Furthermore, some of the traditional making techniques are transformed into new products, for instance a traditional making method of wood joinery is applied to a glasses frame.

Not only from related studies can we know the applied design rules, but also from current products. More design rules are classified from these current products such as image transferred, form followed, function followed, meaning followed, 2D image transferred onto 2D surface or 3D product, and 3D object/landscape image onto 2D surface or 3D products. Therefore, based our cultural classification and catalog of products, a mapping of existing design techniques and cultural features are presented in Table 4.

Table 4 Mapping of cultural characteristics and design techniques

Design ways		imitate/ simile	abstract /simplify	deconstruct	transform	combine		material change	colour change	image transferred	form followed	function followed	meaning followed
						with other cultural characteristics	with other fuctions						
Cultral elements													
1. Artistic creation	Calligraphy												
	Traditional painting												
	Seal graving												
	Paper graving												
	Fan												
	Origami												
	Crafts												
Sum		7	3	3	5	1	3	7	2	6	3	3	1

3.4 Potential guidelines for designing culture-inspired products

To sum up, artefacts, such as paintings, porcelains, bronzes, calligraphy, propitious patterns and seal cuttings are commonly used cultural characteristics. Traditional art craft skill/ techniques, such as paper cutting or folding, and forms of objects are also applied.

Then, there are some combinations between related or unrelated features/ objects are applied to create cultural products. Furthermore, the using of local materials can make the products close to local people and being new and fresh to the people of other areas. Therefore, copying traditional 2D patterns on products is the most common application. The combination of transferred traditional technique/gadget and modern products is relatively few applied, so it is suggested to dig out more technical functions from cultural heritage and enrich this kind of application. In terms of literature review, many research points out products which are cultural-inspired design convey meaning for consumers who can show their social identity and individual taste. However, previous studies of cultural products have not dealt with the way of making culture-inspired products. Thus, digging out more meaningfully potential combination between cultural-inspired elements/symbols is the priority of our research and providing inspiring resources which can be transferred and infused into products is one of our objectives.

Most of the products are inspired from artefacts, especially from artistic creations; the most common applications are products in the kitchen and home category, and followed by the fashion category. Products of other categories could be considered to be exploded, such as technologic products. In the aspect of design rules, most commonly used rules are simile and image transferred from 2D artistic creations, and form transferred from other 3D artefacts. Furthermore, the applied manufacturing tools are print transfer, laser cutting, in-mold decoration, carved and pressing die pottery and ceramic making methods. The contribution of this study is a specific classification of cultural characteristics corresponding to current products and design rules are proposed.

The majority of culture-inspired products are inspired from artistic creations and the most common used design rule is image transferred and normally there is little correlation between the cultural characteristic and the product itself. On the other hand, some award-winning products are designed considering the meaning of cultural characteristic, the function of products and uses' emotion within the cultural context via user behaviour. Therefore, the potential guides will further develop in aspect of meaning transferred and unapplied manufacture tools.

Table. 4 Mapping of cultural elements and current products

Products		Stationary	Kitchen & home	Food	Electronics	Fashion /accessories / Jewellery	Others	Amounts
Cultral elements								
1. Artistic creation	Calligraphy		Table mat, Pot, Bottle, Carbinet, Chopsticks, Lunch box, Tableware		Scanner	Necklace	Key ring	10
	Traditional painting	Bookmark	Mug, Seasoning set, Bowl,			T-shirt, Silk Scarf	Magnet	7
	Seal graving	Book cover	Tea cup			Watch, Ring, Bracelet	Key ring	6
	Paper graving	Weight	Mug, Clock, Pad,		Lamp,	Wallet, Eyelash extension, Necklace,	Umbrella, Public art	13
	Fan		Clock, Desk		Keyboard	Necklace		4
	Origami	Container,	dispenser, chairs, Cabinet, Kitchen sink, food container, Napkin, Floor mat and table, Desk	Tea bag	Speaker, dispenser, Lamp,	Hand bag, Necklace, Shoes, Knitted textile	Garden, Tent, Building	22
	Ceramics, Porcelain, Bronze	Pencil Sharpener, Folder, Stationery Box,	Table, Tea container, Jewellery container, Comb, Mug		Lamp, Phone	Phone Case, Wallet, Key ring, Bracelet	Bicycle	14

4. Conclusions

In this study, design models, rules and principles which can be applied to culture-inspired products are summarized. Furthermore, a classification of cultural characteristics is suggested as well as a rough overview of culture-inspired products and design rules. Accordingly, designers can have an overview of what and how culture-inspired products are in the markets and what can be further explored. However, what kind of culture-inspired products can efficiently arouse users' emotion and differentiate themselves in the markets need to be further discussed. Therefore, our future work is user study as well as interviewing designers to understand what they need when they apply cultural characteristics into product design.

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