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Involving Cultural Sensitivity in the Design Process: a Design

Toolkit for Chinese Cultural Products

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Introduction

Cultural and creative industries have driven industrial product innovation and development. In modern production, the functional and technological features of a product are essential. To differentiate products from other, similar products, some companies and design studios use symbolic meanings in their product designs to gain a competitive position (Clifton, 2011). Because of this trend, culturally sophisticated products have been preferred over technological products since the 1980s (Sparke, 2004). Ravasi, Rindova and Dalpiaz (2012) highlighted the cultural significance of products and further explained the transition from technology-based toward culturally

informed innovation activities. Some studies have shown that the experiential perspectives of consumers have been neglected in the past and that consumers are increasingly buying products for their symbolic meanings; these meanings evoke feelings of pleasure and enjoyment as well as fantasies, imagery, and aesthetic demand, enabling a product to offer more than just its practical functions (Ravasi, Rindova and Dalpiaz, 2012; Verganti, 2009; Holbrook and Hirschman, 1982). In addition, consumers choose products that contain cultural meanings to represent their personal identities and social status (Rompay, 2008; Ravasi, Rindova and Dalpiaz, 2012). That is, people's purchasing intentions are driven by emotional and meaningful connections with the products. Cultural influence can be the link that makes products meaningful and emotionally engaging to their consumers. Hence, incorporating cultural traits into modern product design allows a company to distinguish its product among all standardized products, helps consumers express their social identities, and delivers the traditional aesthetic value of a culture.

Culture is demonstrated through a variety of objects, activities, and environments.

Culture includes intangible beliefs and values as well as tangible artifacts and visible symbols. Cultural features that are present in a tangible or visible form are easier to recognize and apply in design applications. However, an applicable category of cultural features that could support idea generation in design practice is lacking. Therefore, a

category of visible cultural features that represent Eastern culture is suggested in this study for design practice.

In addition to identifying cultural features, cross-cultural designers must determine how these features are perceived to learn more about their users. The literature offers evidence of only three significant approaches that propose design models and offer design procedures for cultural products. These design models illustrate an overview of cultural products and provide steps for the design process and research methods for the development cultural products (Moalosi, 2007; Lin, 2007; Teng and Chuang, 2011). The procedures and models for the design of cultural products provides guidelines for design practice and education. However, we do not know how consumers feel about these products or how to enhance the emotional connection between consumers and products. Therefore, a questionnaire to appraise cultural products was administered to learn how cultural products were perceived.

Eastern culture has been a rich and inspirational source for Western designers, artists, and architects, inspiring both attractive art and objects as well as exotic decorations and materials; this influence of Eastern culture is a result of the exchange and integration of Eastern and Western culture through global trade as well as economic growth (Freeman, Evans and Lipton, 1990). However, designers may not understand their users well and may find it difficult to pin down users' emotional needs when they

are from a different cultural context (Hao, van Boeijen & Stappers, 2017). One example of such cross-cultural collaboration is the Italian brand, Alessi, and their collaboration with the National Palace Museum in Taiwan. The Western designers developed a product series, named Mr. Chin, and they interpreted Chinese culture via a Western design approach. The Mr. Chin products are mostly perceived as cute and humorous, but some Eastern consumers have perceived the products very negatively. Therefore, it is beneficial for both Eastern and Western designers to understand how their users perceive cultural products as well as to learn about the cultural context of their users.

In sum, involving cultural features that express consumers' cultural identities can enhance meaningful associations, add value to a product and increase consumers' emotional engagement. Emotional attachment could be a main reason for consumers to retain a cultural product even after the product can no longer perform its functional use. Previous research has developed theoretical models but has yet to formulate practical applications for design practice. Furthermore, these models have not considered consumer perceptions of cultural products. Given this research gap, a design toolkit for cultural products should be created. Therefore, this study explored the correlation between cultural features and consumers' emotional responses and suggested a design toolkit to engage designers in the cultural contexts of their targeted users in the design process. This study objective informed the three research objectives: 1) to categorize

cultural features for design practice, 2) to investigate consumers' emotional appraisals of cultural products, and 3) to develop a design toolkit for cultural products.

Involving cultural sensitivity in the design process

The design process, an approach to find solutions to a problem, is broadly applied in various areas of the design field, such as architecture, product design, multimedia design and user experience design. The Design Council developed the Double Diamond model, which illustrates the design flow in four stages from discovering the problem, defining possible solutions, developing ideas into a prototype, and delivering the final product (Design Council, 2005). In product development, the design process consists of brainstorming, product definition, research, sketches, prototypes, testing, specifications, factory samples, production and quality assurance (Robinson, 2018). Considering the cultural features of products, our research will focus on the early stage of the design process when designers could include cultural references while generating ideas, brainstorming, and creating sketches.

Categories of cultural products

Cultural products are different from standard products because of their aesthetic and symbolic value (Scott, 2004). A combination of culturally specific meanings integrated into the form of a product can be pleasant for consumers (Ravasi, Rindova and Dalpiaz, 2012). In addition, cultural products can be seen as presentations of cultural value and

can show their owners' social identities (Voon, 2007; Aiello and Cacia, 2014). That is, cultural products can serve as communication media through which users can express their aesthetic appreciation, social value, and affection to others (Moalosi et al., 2005). Most importantly, a cultural product should be representative of the culture on which its design was based. In other words, cultural recognition is the key point to identifying cultural products. In this study, cultural products particularly refer to industrial products, such as furniture, lighting, stationary, kitchen utensils, fashion items, or electronic products.

Culture is demonstrated through a variety of objects, activities, and environments by various authors. The definition of culture historically referred to activities such as raising crops or animals for food and practicing religion, as well as the development of human intellect, spirituality, aesthetics, and artistic activities, and thus particular ways of life (Williams, 1988). However, a turning point emerged in the Romantic era, during which time culture was defined as the different customs and traditions of a group of people within an area (Storey, 2001; Eagleton, 2000; Gay et al., 1997; Williams, 1988; Kroeber and Kluckhohn, 1952). Authors employing this concept of culture have discussed how cultures are distinguished through aspects such as folktales, customs, holidays, sports, religious festivals, traditions, and heritage. Additionally, artifacts have been regarded as representative cultural objects (Hatch, 1993; Freeman, Evans and

Lipton, 1990; Schein, 1985; Kroeber and Kluckhohn, 1952). Social customs, which can be represented through fashion and social activities, can also be presentations of culture (Kroeber and Kluckhohn, 1952; Throsby, 2001). Lowie (1937) suggested that food that is specific to a region can also be important in representing the preferences of local people. Religion, a way that people appreciate what they have been given by God, is another important element of the early definition of culture (Williams, 1988; Hofstede and Hofstede, 2005; Throsby, 2001). Finally, nature and the environment in which a group of people reside affect culture (Eagleton, 2000; Mete, 2006). Some design researchers have stated that cultural features can be applied to interior design and fashion design. Freeman, Evans and Lipton (1990) concluded that the key features of Eastern style in interior design include lavish colors and sophisticated artifacts. In the fashion design field, Mete (2006) classified cultural features into five parts: garments, historic and ethnic costumes, artifacts, and nature. Therefore, the cultural features summarized based on the aforementioned definitions of culture and design practice can be collected and categorized as follows:

- I) Art and artistic activities (Throsby, 2001; Williams, 1988),
- II) Artifacts (Hatch, 1993; Freeman, Evans and Lipton, 1990; Schein, 1985; Kroeber and Kluckhohn, 1952),
 - III) Customs (Kroeber and Kluckhohn, 1952; Throsby, 2001),

- IV) Food habits (Lowie, 1937),
- V) Architecture (Voon, 2007),
- VI) Religion (Hofstede and Hofstede, 2005; Throsby, 2001),
- VII) Nature (Eagleton, 2000; Mete, 2006).

These seven categories are derived from general definitions of culture and, therefore, can be applied in most cultures. This research, however, focuses particularly on Chinese culture; thus, some of the general categories of cultural features were further broken down into subcategories for a total of nine Chinese cultural features. For instance, handwriting and painting, printing, and origami were derived from the art and artistic activities category, and utensils and objects were derived from the artifacts category. The seven general categories of cultural features are identified below (Table 1). The categories can be seen as flexible so that designers can adjust or expand the subcategories for their practical use.

Table 1 Categories of cultural features

C	Chinese	
General category	cultural	Descriptions of the cultural features
	features	

	Handwriting and painting	Elegant penmanship as an art or profession
Art and artistic	2. Printing	Texts or images that are duplicated on paper by a template or machines
	3. Origami	Paper folded into representational shapes without cutting
Artifacts	4. Utensils and objects	Found objects previously made by humans
Customs	5. Customs	Traditional activities or behaviors among a specific group of people
Food	6. Food	Items that are eaten
Architecture	7. Architecture	Creative building that combines art and science
Religion	8. Religion	Worship of a god or gods in any belief system
Nature	9. Nature	The physical world that is not made by people

Emotional appraisal of cultural products

Emotion has a prominent influence on our daily lives and affects our decisions. Products such as artifacts, clothing, and consumer goods can trigger an individual's emotions associated with his or her experiences. Many studies have evaluated emotional responses by utilizing or developing reliable tools. In this study, questionnaires were

used to understand how consumers perceived products.

Emotional assessments, especially for product evaluation, are divided mainly into objective or subjective approaches (Kim et al., 2012; Mauss and Robinson, 2009; Khalid and Helander, 2006a; Scherer, 2005). In objective approaches, precise physiological reactions, such as blood pressure, heart rate, skin conductance, and brain states, are measured by specialized equipment. These approaches can truly reflect individuals' unconscious bodily reactions and can be broadly used across different cultures. However, these approaches are intrusive and may provoke people to resist testing; further, only limited basic emotions can be assessed by the these approaches. In subjective approaches, self-report assessments are conducted with scales or adjective checklists for individuals to report their emotional experiences. For instance, the Self-Assessment Manikin (SAM) (Lang, 1980) and the Product Emotion Measurement Instrument (PrEmo) (Desmet, 2002) use figures to express emotions rather than written words. These approaches require fewer technical instruments than objective approaches and make it easier to collect data from a considerable number of individuals without language barriers. Additionally, in terms of participants having the ability and willingness to report their true emotional experiences, the best source of information is self-report assessments (Larsen and Fredrickson, 1999). However, self-reported responses may change over time or be consciously distorted.

An emotional appraisal of a product is a subjective feeling due to a person's memory and experience. Self-report assessments are, therefore, considered the best approach to measure currently experienced emotions without intrusive equipment. The research question addressed in this paper is how Eastern and Western populations emotionally appraise Chinese cultural products. Among the aforementioned self-report assessments, the SAM was used in this study because it has been tested in many studies and is a reliable and stable emotional recognition system. Additionally, participants can easily select the figures in the 'pleasure' and 'arousal' dimensions can based on intuition without thinking too much about other emotions.

In addition to the quantitative approach to understanding the strength of consumers' emotional responses with the use of the SAM, emotional descriptors were used in the questionnaire to understand which emotional experiences were elicited. Emotional descriptors from the psychology literature and experiential responses based on the emotional branding strategy were selected as examples of users' emotions, aesthetic judgment, and experiential responses regarding Chinese cultural products. Both the positive and negative emotional experiences of objects that were used in the questionnaire are shown in Table 2.

Table 2 Emotional experiences of objects in this study

Emotional experiences selected for this research				
Positive	Attraction Humor		Amusement	
	Self-expression	Luxury	Nostalgia	
Nicontinu	Boredom	Anger	Confusion	
Negative -	Anxiety	Cheapness	Pessimism	

This questionnaire was conducted with 140 participants, with 70 participants from an Eastern cultural background (including people from China, Japan, Thailand, Taiwan, Indonesia, and Korea) and 70 participants from a Western cultural background (including people from European countries, the United States, Brazil and Mexico). The participants were recruited mainly in Taiwan and the United Kingdom. The SAM was administered to investigate how the participants appraised cultural products. The participants were invited to express their emotions regarding 40 sample cultural products.

To test whether the products were appropriately grouped in the Chinese cultural feature categories, Cronbach's alpha, a statistical measurement of the reliability of a scale, was used to assess whether the same underlying attribute was measured by the scale. Thus, the reliability of every cultural category was tested by Cronbach's alpha. Normally, the minimum Cronbach's alpha value is .7 when there are more than 10 items.

However, Nunnally (1978) and Pallant (2013) argued that a Cronbach's alpha value of .5 is acceptable and sufficient when there are fewer than 10 items. In each cultural feature category, the maximum number of Chinese cultural products was 7; therefore, the recommendation of Nunnally (1978) and Pallant (2013) was adopted. The Cronbach's alpha values reported in Table 3 in each category are greater than .5, which means that the pleasure scores in each category have good internal consistency, except for the nature category.

Table 3 Reliability statistics of the products in each cultural feature category

	Reliability statistics		
Categories of Culture	Cronbach's	Number of items	
	alpha		
M1) Handwriting & painting	.532	6	
M2) Printing & paper cutting	.579	6	
M3) Origami	.751	7	
M4) Utensils and objects	.533	7	
M5) Customs	.557	5	
M6) Food	.533	2	
M7) Architecture	.570	2	

M8) Religion	.585	2
M9) Nature	.423	3

The results (Table 4) show that the mean pleasure scores for both Easterners and Westerners were higher than the neutral 3 points, which suggested that both groups derived pleasure from the Chinese cultural products. Furthermore, the perceived pleasantness of the products in terms of the cultural feature categories were assessed. The result showed that Chinese cultural products inspired by origami and food were perceived as the most pleasant by Easterners, while the products inspired by origami and architecture were perceived as the most pleasant by Westerners.

Table 4 Pleasure descriptive statistics for Easterners and Westerners

	Pleasure Descriptive statistics			
	Mean	Median	Mode	N
Easterners	3.4	3	3	70
Westerns	3.3	3	4	70

From the results of the emotional descriptors, the frequency of selection was calculated as a percentage to show an overview of the emotions aroused by Chinese

cultural products. In general, Chinese cultural products were perceived as positive, and the most frequently selected positive emotional descriptor among all participants was "attraction". However, the Eastern participants felt self-expression (15%) and luxury (11%), while the Western participants felt more amusement (13%) and luxury (12%).

In this study, each Chinese cultural feature was found to be highly correlated with emotional responses, as shown in Figure 1. This research explores the links between a cultural feature and its correlated emotional experiences. For example, within this research, the category of handwriting and painting could arouse nostalgia. Although the emotional responses were not restricted to those highlighted in this research, this study shows how consumers perceive cultural products. The results of the questionnaire will contribute to developing a design toolkit that can inform designers about how cultural influences impact their consumers.

Figure 1 Corresponding emotional responses to cultural features

Development of a design toolkit for cultural products

Emotional engagement is the key factor for decision making when purchasing products, and cultural influences create emotional bonds between users and products. Therefore, this research suggests a design toolkit that could support idea generation in the design

process. The target users of the toolkit are designers from both Eastern and Western culture. The toolkit aims to enable designers who are not raised in the same cultural contexts as their users to learn and select suitable features as well as to provide designs immersed in the same cultural context as that of their users to enhance emotional connections between products and consumers. Thus, the both Eastern and Western designers were invited to participate in workshops to evaluate the toolkits.

This toolkit was developed through an iterative process involving expert interviews and workshops. A total of four iterations were used as an appraisal to develop the toolkit (Figure 2). A series of interviews were conducted with two experienced product designers to develop the initial prototype, explore needed information, optimize the contents, and finalize the layout and contents.

Figure 2 Iterations based on expert interviews

The experts were design professionals recruited from the team at the human-centered design institution of Brunel University London who had both practical design and research experiences. Experts who showed interest in applying cultural features in modern products were chosen. One of the designers had five years of working experience, and the other had ten years of working experience as a product designer. The interviews aimed to test and evaluate the iterations of the cards in practice before conducting the workshops. Through a series of group expert interviews with designers

and based on the feedback received, the card deck was validated and improved. The contents of the cards included information on cultural features, design features, emotional descriptors, and the corresponding current applications. Then, the toolkit was introduced and applied in the design workshops to bring cultural sensitivity to the designers' attention. The card deck is double-sided, with one side indicating the emotional response and the other side presenting the correlated cultural features and design features. An example from the card deck is shown in Figure 3. Designers can select the emotion that they would express (Figure 3, left) and view the corresponding information on the back of the card to learn about the cultural features and examples (Figure 3, right).

Figure 3 An example of the origami card

In the iterations in the workshops, students from Eastern and Western cultural backgrounds were invited to use the card deck to design Chinese cultural products. Each workshop included three sessions: the first session was conducted without using the card deck, the second session was conducted with card deck, and the thirded session involved evaluation and feedback of the toolkit. Thus, we could evaluate the toolkit regarding whether it helped designers make products more engaging to consumers. The participants were instructed that their products should meet three criteria: emotional

connection, cultural representation, and function. 'Emotional connection' means that the product should engage the users. 'Cultural representation' indicates that the cultural features of the product should be well recognized. 'Function' means the product should be useful.

In workshop one, the participants were nine international students, four from Eastern cultural backgrounds and five from Western cultural backgrounds. The participants were mainly students who studied in the Department of Design at Brunel University London and were majoring in product design. The participants were grouped into three groups: one group of all Eastern students (group A), one group of all Western students (group B), and one group with a mixture of both Eastern and Western students (group C). Five students were female, and four students were male. Additionally, each group had a facilitator. The participants were challenged to design a product for office use and to target at an emotional experience that they expected their product to deliver. In the first session (without using the toolkit), the participants generated ideas through brainstorming and chose the best idea to use to make a sketch. Then, in session two, the participants followed the same procedure as in session one, but the card deck was introduced at the beginning of the design process. The card deck was applied to assist participants in learning more about the meanings and values of Chinese cultural features as well as the correlated emotional connections.

Figure 4 shows the sketches from sessions one and two. The idea sketches from both sessions were presented in every group, and all participants voted visually via dotmocracy. Dotmocracy is a method that is used to vote with dot stickers on idea rating sheets. The participants were given a limited number of dot stickers to place on their favorite options. This method is helpful for finding agreement among many options in a group (Stevens 2014). As shown in Figure 4, the green dots show the ratings of the sketches that were generated without the card deck, while the yellow dots represent the ratings of the sketches that were generated involving the card deck. For the emotional connection criterion in workshop one, the rating of the product sketches from group A increased from 3 dots to 19 dots after using the card deck, but the ratings decreased in group B and group C. This finding might be because in workshop session one, the Western participants (groups B and C) could select any cultural feature based on their underlying experiences. However, in session two, they had to choose one feature from the card deck that might not be familiar to them. On the other hand, the card deck worked better for the Eastern participants (group A), who were familiar with Chinese culture. For the cultural representation criterion, the ratings of both group A (from 7 to 15 dots) and B (from 15 to 20 dots) increased, and the rating remained the same in group C (19 dots). Thus, the card deck helped both the Eastern and Western participants

(groups A and B) convey the meanings of the cultural features. Overall, the participants gave positive feedback about using the card deck in their design processes. The card deck was found to be very helpful in selecting and organizing ideas and was considered an efficient approach to the design process and the exploration of concepts. The information provided could help designers focus and create necessary boundaries. The card deck was regarded as an interesting strategy to generate more ideas. However, there were also some suggestions to improve the card deck. One participant suggested that the font size of the examples should be increases and that the guiding questions should be clearer. Regarding the emotional descriptors, it was suggested that 'humor' and 'amusement could be identified more clearly. In addition, it was recommended that the design features on each card include more examples. The feedback contributed to improving the card deck for workshop two.

Figure 4 Results of Workshop one

After amendments to the card deck based on the previous workshops, workshop two was conducted with a new version of the card deck. The second workshop aimed to test whether the improved cards better assisted designers in their design processes. Workshop two followed the same procedure as the workshop one, but the objective was focused on designing a specific product (i.e., salt and pepper set), and the emotional experiences had to be selected from one of the six descriptors: attraction, humor,

amusement, self-expression, luxury, and nostalgia. This limitation was established to help to compare the results of the workshops without the cards (session one) and with the cards (session two). Three participants each were recruited from Eastern and Western cultural backgrounds. The participants recruited for this workshop were students of the Department of Design at Brunel University London. The participants were then divided into two groups in relation to their cultural backgrounds. Group A was composed of three Eastern participants, and group B was composed of three Western participants. The participants were challenged to design a salt and pepper set that would represent Chinese culture. They were instructed to select a cultural feature that would be suitable for the product and that the product should elicit certain emotional experiences in the users. In session one (designing without the card deck), six emotional descriptors were provided for the participants; the participants chose one emotional descriptor and brainstormed a cultural feature that would be the most suitable to the selected emotional response.

In session one (figure 5), group A selected a teapot as a Chinese cultural feature to use to design a salt and pepper set. They aimed to make the product 'attractive'. Group B was inspired by a Zen garden. They aimed to make the product promote owners' experiences of 'self-expression'. The way the salt and pepper were shown in the container was similar to the sand present in a Zen garden.

In session two (figure 5), the card deck was introduced, and the participants were instructed to apply the card deck in their design process. The selected emotional descriptor remained the same, but several cultural features that could arouse the particular emotion were suggested by the card deck for the design a new salt and pepper set.

The product sketches made from session one and two by group A were evaluated by group B and vice versa. The result from group A showed that the emotional connection rating improved from two dots to seven dots after introducing the use of the card deck, while the rating for cultural representation remained the same, and the function rating decreased slightly from six dots to four dots. The result from group B showed that the emotional connection rating remained the same, the cultural representation rating decreased from seven points to three points, and the function rating increased from zero to five points. Other emotional responses for the same product sketches are shown below the sketches.

Figure 5 Evaluation of the product sketches by group A and B

This result showed that the card deck helped the Eastern participants improve the emotional connection of their product and helped the Western participants improve the

function of their product while maintaining the same level of emotional connection. Additionally, a survey was conducted with general people who were not involved in the workshop to evaluate the products. The result of the survey showed how consumers felt about the product sketches (Figure 6). The result of the survey provided positive feedback. The result clearly showed that the card deck assisted both the Eastern and Western participants to create Chinese cultural products that could enhance users' emotional attachments.

Figure 6 Products evaluations by potential consumers

Discussion

In workshop one, the participants gave positive feedback about using the card deck. The layout of the card deck was well designed and suitable for group use. The card deck worked very well for selecting cultural features for all groups; however, the link between cultural features and the correlated emotions was not strong enough to assist designers who did not have a Chinese cultural background to use the cards. The Eastern designers produced ideas more efficiently and more productively with the assistance of the card deck, but the card deck made Western designers feel restricted in the brainstorming process due to the lack of correlations among the information. Therefore, the Western designers recommended that the correlations between the cultural features and emotions be further enhanced. The Western designers were not very familiar with

Chinese culture; thus, they needed more information to help them more effectively incorporate Chinese cultural features. The result of applying the card deck in the product design process was positive because the product sketches were more highly appraised when the designers (from both cultural backgrounds) applied the card deck in their design processes. The feedback from workshop one contributed to the further development of the card deck and led to the second iterative workshop.

In workshop two, the designers from both cultural backgrounds found the cards to be very helpful in their design processes. The Eastern designers liked to use the cards to explore more design possibilities, while the Western designers liked to use the cards as an inspirational starting point. The card deck helped the Eastern designers who were familiar with Chinese culture to discover more possibilities for integrating cultural features and design features in creating a product during the brainstorming process. However, the Western designers preferred to use the card deck in their brainstorming. For instance, the cards helped them to generate ideas regarding the cultural context, guiding them to develop a design concept by choosing suitable cultural features for the meanings of products in the Chinese cultural context.

Conclusion

Emphasizing cultural meanings and presenting traditional cultural aesthetic values in products raise awareness about the protection of local cultures. Highlighting local cultures in a product becomes an innovative way to differentiate the product from others in mass production. The purpose of this study is to highlight the role of cultural sensitivity in designers' product development by suggesting a design toolkit for cultural product design. The intended users of the toolkit include Eastern and Western designers. Eastern designers, who are familiar with Chinese culture, can apply the toolkit to enhance emotional connections between products and consumers, while Western designers can utilize the toolkit to understand the Chinese cultural context and consumers' emotional reactions to products. In this study, a category of cultural features was summarized to provide a broad picture of applicable cultural traits. Meanwhile, consumers' perceptions and appraisals of the products were investigated to understand their emotional responses related to the cultural products. Based on these surveys, the underlying correlation between the cultural features and consumers' emotional responses contributed to the development of the card deck. This design card deck is developed for use in the initial design process when brainstorming and idea generation occur. The purpose of the card deck is to encourage designers to be aware of cultural influences on product design development. This study took Chinese culture as an example for Eastern and Western designers, inspired by the case of cross-cultural cooperation between Alessi and National Taiwan Museum on a design project. The card deck is not intended to limit designers' creation; instead, designers can see the deck as a source of basic information to expand their thoughts in idea generation and to explore possible applications in the Chinese cultural context. The study incorporated emotions in the design of Chinese cultural products to produce stronger emotional engagement with consumers. Designers are important message deliverers, and their cultural sensitivities are key to designing meaningful and valuable products.

References

- Aiello, L. and Cacia, C. (2014). 'The Cultural Product: Integration and Relational Approach.', in Aiello, L. (ed.) Handbook of Research on Management of Cultural Products: E-Relationship Marketing and Accessibility Perspectives. Business Science Reference, pp. 1-21.
- Clifton, N. (2011). Regional Culture in the Market Place: Place Branding and Product Branding as Cultural Exchange'. *European Planning Studies*, pp. 1973-1994.
- Design Council UK. 2005. Eleven lessons. A study of the design process.
 Retrieved from:

https://www.designcouncil.org.uk/sites/default/files/asset/document/ElevenLessons_Design_Council%20(2).pdf

- 4. Desmet, P.M.A. (2002). Designing emotions. Delft University.
- 5. Eagleton, T. (2000). The idea of culture. Oxford: Blackwell.
- Freeman, M., Evans, S. and Lipton, M. (1990). In the oriental style- A
 sourcebook of decoration and design. London: Thams and Hudson. SAGE
 Publications.
- 7. Field, A. (2013). *Discovering Statistics Using IBM Spss Statistics* (4th ed.). London: SAGE.

- 8. Gay, P.D., Hall, S., Janes, L., Mackay, H. and Negus, K. (1997). *Doing Cultural Studies: The Story of the Sony Walkman*. London: Sage.
- Hao, C., Boeijen, A., Jan Stappers, P. (2017). Cultura: A communication
 toolkit for designers to gain empathic insights across cultural boundaries. In
 proceedings IASDR 2017, Cincinnati, Ohio, United States.
- 10. Hatch, M.J. (1993). The dynamics of organizational culture', 18(4), pp. 657-693.
- 11. Hofstede, G. and Hofstede, G.J. (2005). *Cultures and Organizations: Software of the mind* (2nd ed.). New York: McGraw-Hill.
- 12. Holbrook, M.B. and Hirschman, E.C. (1982). The Experiential Aspects of Consumption: Consumer Fantasies, Feelings, and Fun. *Journal of Consumer Research*, 9(2), pp. 132-140.
- 13. Kim, J., Bouchard, C., Ryu, H. and Aoussat, J.F. (2012). Emotion Finds A Way to Users from Designers: Assessing Product Images to Convey Designer's emotion.', *Journal of Design Research*, 10(4), pp. 307-323.
- 14. Khalid, H. and Helander, M. (2006a) 'Affective and pleasurable design', in Salvendy, G. (ed.) *Handbook of human factors and ergonomics*. 3rd edn. John Wiley & Sons, pp. 543-573.
- 15. Kroeber, A.L. and Kluckhohn, C. (1952) Culture: A Critical Review of

- Concepts and Definitions. U.S.A.: Museum of Cambridge Massachusetts.
- 16. Lang, P.J. (1980) 'Behavioral Treatment and Bio-beHavioral Assessment: Computer Applications.', in Sidowski, J.B., Johnson, J.H. and Williams, T.A. (eds.) *Technology in Mental Health Care Delivery Systems*. Ablex Publishing Corporation, pp. 119-1371.
- 17. Larsen, R.J. and Fredrickson, B.L. (1999) 'Measurement issues in emotion research', in Kahneman, D., Diener, E. and Schwarz, N. (eds.) Well-being: the foundations of hedonic psychology. New York: Russell SAGE foundation, pp. 40-60.
- 18. Lin, R. (2007) 'Transforming Taiwan aboriginal cultural features into modern product design: a case study of a cross-cultural product design model',
 International Journal of Design, 1, pp. 45-53.
- 19. Lowie, R. (1937) *The history of ethnological theory.* USA: Holy, Rinehart and Winston.
- 20. Mauss, I. and Robinson, M. (2009) 'Measures of emotion: A review', Cognition and Emotion, 23(2), pp. 209-237.
- 21. Mete, F. (2006) 'The creative role of sources of inspiration in clothing design',

 International Journal of clothing Science and Technology, 18(4), pp. 278-293.
- 22. Moalosi, R. (2007) The impact of socio-cultural factors upon human-centred

- design in Botswana Queensland University of Technology.
- 23. Moalosi, R., Popovic, V., Hudson, A. and Kumar, K. (2005) 'Integration of culture within Botswana product design', *In proceedings 2005 international design congress*. National Yunlin University of Science and Technology, Taiwan.
- 24. Nunnally, J.C. (1978) Psychometric theory. New Work: McGraw-Hill.
- 25. Pallant, J. (2013) SPSS survival manual: a step by step guide to data analysis using IBM SPSS. 5th edn. England: McGraw-Hill.
- 26. Ravasi, D., Rindova, V. and Dalpiaz, E. (2012) 'The cultural side of value creation', 10(3), pp. 231-239.
- 27. Robinson, J. (2018) A 10-Step Product Design Process. Indie Brand Builder.
 Retrieved from http://www.indiebrandbuilder.com/10-step-product-design-process/.
- 28. Rompay, T. (2008) 'Product Expression: Bridging the Gap Between The Symbolic and The Concrete.', in Schifferstein, H. and Hekkert, P. (eds.)

 Product Experience. Elsevier, pp. 333-350.
- 29. Schein, E.H. (1985) *The Corporate Culture Survival Guide: Sense and Nonsense About Culture Change*. San Francisco: Jossey-Bass.
- 30. Scherer, K. (2005) 'What are emotions? And how can they be measured?',

- Social Science Information, 44(4), pp. 695-729.
- 31. Scott, A.J. (2004) 'Cultural-Products Industries and Urban Economic

 Development_ Prospects for Growth and Market Contestation in Global

 Context', *Urban affairs review,* 39, pp. 461-490.
- 32. Storey, J. (2001) *cultural theory and popular culture*. 3rd edn. England: Pearson Education Limited.
- 33. Sparke, P. (2004) *An Introduction to Design and Culture: 1900 to the Present.*2nd edn. Oxon: Routledge.
- 34. Teng, C. and Chuang, M. (2011) 'Method for applying culture characteristics to emotional product design', IASDR (The International Association of Societies of Design Research), 4th World Conference on Design Research:

 diversity and unity.
- 35. Throsby, D. (2001) *Economics and Culture*. Cambridge: Cambridge University Press.
- 36. Verganti, R. (2009) Design Driven Innovation: Changing the Rules of

 Competition by Radically Innovating What Things Mean. Massachusetts:

 Harvard Business School Press.
- 37. Voon, T. (2007) Cultural products and the world trade organization.

 Cambridge: Cambridge University Press.

38. Williams, R. (1988) A vocabulary of culture and society. London: Fontana.