A Product as a Poem: A Case Study of a Bird-shaped Teapot Design Based on Traditional Chinese Poetic Aesthetics

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ABSTRACT

The concept of emotional design has become the main focus in the current trend of perceptual consumption. After reviewing the historical development of art, we determined that traditional Chinese art emphasizes subjective expression and favor poetics. Classical Chinese poetic aesthetic theory is based on nearly 2,000 years of history and, thus, comprises a myriad of valuable ideas. One of the authors, the creator of the bird-shaped teapot has extensive experience researching and creating Chinese art, and drew on these experiences and knowledge to craft the teapot. However, the purpose of the design was to achieve Donald A. Norman's reflective level of emotional design. This article analyzed its design features and methods, and proposes 12 specific design strategies as the purpose of knowledge exploration. Finally, a questionnaire was used to understand consumer feelings of poetic design and whether this strategy would be received well in the art and design market. The results of the case study indicate that a poetic design based on traditional Chinese artistic techniques can be implemented.

1.   Introduction

Lope de Vega (1562-1635 AD) once mentioned two well-known contemporaries' in his sonnet: he called the Italian poet Marino as a great painter for ears and the Flemish painter Rubens as a great poet for eyes. (Frankel, 1957). This relationship is not exclusive to poetry and painting. Chu (2003) noted that poetry and other arts all are the outpouring of emotion. In addition, Heidegger (1993) remarked that all arts are essentially poetry.

Today, industrial design has been freed from the restraint of functionalism. Furthermore, they are now focused on fulfilling costumer's emotional needs. If we return to the emotional perspective, as poetry is the most efficient means of emotion expression, can design and crafts communicate a poetic aura as much as other forms of art, presenting a poem-like composition? Based on their experience in

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designing greeting cards, Klegin & Caldwell (2012) concluded that there were eleven routes to empathize with people and help them tap into and express their feelings. They included sparing space, considering the relationship, characterizing the personality, telling a story, and imitating nature, etc. Following Klegin & Caldwell (2012), we wished to identify the useful strategies to achieve "poetic design" and arrive at the techniques that differ from those inspired by Western thoughts. Our research was conducted by carrying out a literature analysis on the features of "poeticity" and "emotional design" as well as the theories and techniques of traditional Chinese arts. Subsequently, on the basis of the findings of the literature review, we administered case design and developed design strategies using the creative practice approach in an interactive fashion.

The "creative practice" is based on Winner (1982) pointed out that in the process of creation artists must keep facing challenges and solve them. Following up on Winner's point of view, Liu (2004) made the further statement that the process of artists in exploring and finding problems and finding a solution not only displays the spirit of research but also accounts as a process of research. Regarding the results of the case design, we assessed whether the outcomes confirmed our expectation in quantitative measures using a questionnaire survey.

This article discussed the theories and techniques of traditional Chinese arts, and developed design strategies through realistic cases of teapot design. As far as Taiwan-based designers are concerned, it is beneficial for them to compete in the global market. To western designers, our study is valuable since it helps them better understand the aesthetics of different cultures.

This article offered a summary account on the basis of literature analysis as well as the research findings of design strategies and was lastly closed with a relevant conclusion. In addition, the information related to product preference and purchase intention was also obtained, which was outlined in the article as the reference for design behavior. Owing to the limited space, the design procedure of the teapot design case was not presented.

2.   Literature review

2.1   The features of poetry

It is also a form of literature that demonstrates an aesthetic beauty and is suitable for singing, and it is indeed a highly integrated system of content and form. The traditional form of poetry is also labelled as "verse", which differs from "prose" with respect to structure, tempo, and rhyme.

According to Oxford Advanced Learner's Dictionary, the term "poetic" is defined as "like or suggesting poetry, especially because it shows imagination and deep feeling." Chu (2003) also notified that poetry is a flow of emotion, just like other forms of art, which is a frenzy aroused from experiencing real-world entities.

Based on these concepts, we believe that aesthetics and emotion presentation are the salient features of poetry. Although perceiving poetry is a complex process, aesthetic feelings are primarily derived from structure, rhyme, and emotion, while emotion is mainly induced by the imagination inspired by the content and the suggestive meaning in the poetry.

Beatty and Ball (2010) demonstrated that the concept of "poetic" is derived from its inherently ill-defined nature. Due to the vagueness of the target object or phenomenon and the hardly pursued solutions, poems often contain many instances of uncertainty and ambiguity (Ormerod, 2005). Therefore, poetry always creates a mental space between being and non-being.

2.2   Emotional design

The purpose of poetic design is to express feelings; it can be taken as a part of emotional design. "Reflection" is defined it as the third level of emotional design, which is an effect of the first and second levels, visceral level and behavioral level, leading to a stronger interwoven influence of factors such as deeper emotion, consciousness, comprehension, etc. (Norman, 2004). The reflective level is the level that is the most subject to vary with individual difference, such as one's cultural background, experience, education level, and ups and downs in life.

2.3   The poetic features of Chinese literature and aesthetics

Through comparing classical oriental arts and aesthetics with their western equivalents, it is clear that traditional Chinese arts emphasized subjective emotional expression from the perspectives of either creators or audiences. Chien (1945/1997) compared Chinese with Western poetry and suggested that it is beyond our expectation that the development peak of pure lyrical poems appeared so early in Chinese poetry. He also emphasized that Chinese arts had developed the styles "impressionism" and "post-impressionism" even before "realism". The high-throughput development of lyrical poetry and the freehanded painting style showed that, compared to the western arts, Chinese traditional arts emphasized their creators' subjective emotional expression.

The comparison between traditional Chinese and western aesthetics can be taken as the comparison between "poeticity" and "rationality". Unlike the abstract rational mode of reasoning, poeticity refers to the way of thinking that heavily relies on the visualization of images: one senses external entities in an empathetic manner, grasping and distinguishing real-world objects in an analogical fashion and expressing emotions and thoughts through symbolism, metaphor, and sensing and feeling (Chu, 1984). The theories and terminologies in the domain of Chinese aesthetics like "Xing-Shen Lun (Form-Spirit Theory)", "Xu-Shi Lun (Fictionality-Reality Theory)", and "Yan-Yi Lun (Speech-Meaning Theory)" can hardly explained in plain language. In other words, poetic thinking is image-based, concentrated, subjective, and lyrical, which features the beauty of vividness and implicitness in common with poetry; on a par with poetry, it is characterized with blurriness, vagueness, and polysemousness.

2.4 The relationship between Chinese traditional artistic techniques and product design

Chinese aesthetics emphasizes the expression of poetic meaning. Poetry and painting are especially highly related from the prospective of either aesthetics or expression of subjects. The high-degree development of Poetry Wisdom has created many methods for successfully expressing poetry: for instance, "junction of people and nature", "combination between the being and not-being", "abandoning of appearance after having the spirit", and "the joy between contradictory elements".

2.4.1 Junction of people and nature

The junction of people and nature is the fundamental spirit of Chinese aesthetics, which is also the greatest difference between Oriental and Western philosophy. Westerners believe that the relationship between human being and nature is that of subject and object, two separate entities. However, in Chinese philosophy, humans, as a part of nature, cannot be separated from nature. This aesthetic, which is widely used in modern bionic design, intends to gain a deep spiritual touch through the simulation of natural things.

2.4.2 The theory of rhythmic vitality

The word "Yun (vigor)" originated from linguistic and literature theories. As Liu-Xie illustrated in "Shenglu (Phonological Rules)", a chapter of his work "Wenxin-Diaolong", the alliteration and assonance of heterophones are referred to as "harmony" and the correspondence of homophones as "rhyming". The first instantiation of this theory in painting might have its root in Xie-He (479-502 AD) "Guhua-Pinglu (Six Principles of Chinese Paintings)": What are the six principles? The six principles concern "rhythmic vitality", "structure and brushwork", "modelling after object", "adaptation with coloring", "careful placing and composition", and "following and copying" respectively. Since the six principles were put forth, Chinese ancient paintings have entered the era of theoretical self-awareness. Afterwards, painters have always evaluated a painting by these six principles as to whether it is a success.

2.4.3 Abandoning of appearance after having the spirit

This theory placed the emphasis on the spirit abstracted through the medium of concrete forms. Wang-Bi (226-249 AD), a philosopher in the Three-Kingdom Era, explicated that appearance, as so labeled, is actually a derivation out of meaning. Verbal expression is an embodiment of appearance… Hence, verbal language is able to bring out the appearance but, nevertheless, it can be abandoned once the appearance has obtained; appearance bears a meaning, but, on the contrary, it can be abandoned as the meaning has been figured out. Literary pieces like the "Yin-Xiu Theory" proposed by Liu-Xie (c. 466-522 AD) in his work "Wenxin-Diaolong (The Literary Mind and the Carving of Dragons)" and paintings like Gu-Kaizhi's (c. 348-405 AD) composition "Qianxiang-Miaode (The Exercise and Stimulation of Imagination

Lead to Acquisition and Understanding)" are both the extension of the ideas "abandoning the verbal expression after obtaining the appearance" and "abandoning the appearance after figuring out the meaning". The space of imagination through "abandoning the verbal expression after obtaining the appearance" is the very key to feeling the poetic flavor. In product design, the state of "abandoning the appearance after figuring out the meaning" can be realized through using abstract, impressionistic bionic techniques as well as applying traditional decorative patterns. From the semiotic perspective, traditional decorative patterns or images can not only serve as a form of art to demonstrate the beauty of form and the beauty of decoration but also function as a system of signs, which carries a special symbolic meaning.

2.4.4 Combination between the being and not-being

Being and not-being; existence and non-existence. This theory was based on the philosophy of Lao-Zi (c. 604-531 BC). He proposed: "Being and not-being grow out of one another. Difficulty and ease complement one another. Lengthiness and shortness contrast one another. Highness and lowness define one another. Music and voice accompany one another. Front and back follow one another." The idea refers to phenomena such as contrast and supplementation, contrariness and unification, and waxing and waning. The practices of complementing being and non-being include strategies like bringing non-being out of being, backing non-being with being, and constructing non-being with being. "Abstract ways of profiling", as in a non-existent form, and "concrete ways of profiling", as in an explicit expression, can be integrated in an organic fashion so as to provide broader thoughts and more space of imagination and give deeper and stronger impressions. The emphasis of Chinese traditional painting on blanking, contrast, and harmony is an application of this theory.

2.4.5 The joy between contradictory elements

This is the means of expression for Chinese traditional "impressionistic" painting. This idea designates the spirit that an artistic image as created by a painter should not only profile a scene objectively but also outline, select, and adjust, so as to produce a stronger artistic effect than can be experienced in real life. As Sheng-Hao (1586-1661 AD) stressed in his work on painting "Hua Zhu" in the Ming Dynasty, things look alike but not the same, and they look unlike, yet they are from the same. In his poem composed in the Qing Dynasty, Shi-Tao (1642-1707 AD) stated that a good painting is like a mystery that is always changing in blurriness and vagueness; it is so similar yet so different that it is admirable and striking. In the view of Qi-Baishi (1864-1957 AD), the wonder of painting lies in its interplay between similarity and dissimilarity. In a word, the application of impressionism in product design can be made possible through expressing the key features extracted from the target to be profiled. In addition, the idea can be extended to refer to the under-specificity between "trueness" and "non-trueness", which can lead the product to a poetic space for imagination and association.

3. Research method

Poetic design emphasizes the sensory aspect of products, and seems to have similar goals as "Kansei Engineering"; however, they have enormous differences. Kansei Engineering is the combination of emotions and engineering, which is one of the branches in engineering. It basis is to design products through analyzing human emotions, and manufacture products in terms of human preferences. Although emotions can be testified, quantified, and analyzed by modern techniques these days, and their patterns can be captured, emotion is a dynamic process and a complex psychological state which may be affected by time, trend, fashion, individuals, or even personalities. Thus, Kansei Engineering still has its limitations. In contrast, poetic design is based on the tradition of arts and literature, which emphasize the emotion and feelings of human being.

Viewing the humanities basis of Poetic Design, this research used the qualitative research method. In the research, the researchers have obtained their understanding of the rules of practice in poetic design through literature analysis. However, in order to examine whether the method can faithfully fulfill the purpose of research, the study also used a quantitative research method with well-designed experiments.

4. The design strategy for this case study

Beatty and Ball (2010) interviewed 5 professional poets and asserted that they all benefited from the inspirations from their familiar fields. One of the researchers conducted a comprehensive study of the Tao-Gui, a Chinese prehistoric pottery, for many years. For the researchers of this study, Tao-Gui is not only their most familiar subject but also parallel to tea pots in terms of functionality. Therefore, the shape of an ancient Chinese Tao-Gui was used as the reference for the design of the bird-shaped tea pot so as to create products with excellent functional aspects as well as with poetic oriental traditional flavors. The communication of poetic reading was the ultimate target.

In what follows, we outline the related strategies adopted for this "poetic design" project as well as its source references and focus of execution. Based on the three layers of emotional design put forth by Donald A. Norman, we adopted the "instinct level" as the foundation, which qualifies the tea pot as a creative design. The second layer is the "action level", which mainly concerns the functional aspects of the practical goods, which a product with decorative function only does not seem to fulfill. The last level, which is also the key for the poetic design, is the "introspection level". A design does not need to meet all the criteria at the level: how many features are fulfilled depends on individual products.

Figure 1: The result of a bird shaped teapot design case

4.1   Visceral level

4.1.1   Pay attention to proportion and contour to give aesthetic taste

In classical Greek aesthetics, Pythagoras first announced his theory that beauty is a display of harmony, and beauty should focus on symmetry and proportion (Li, 2005). Due to this statement, numbers and proportions have become the focus in western aesthetic. Chinese traditional arts value proportion and layout; for instance, Xie-He proposed his idea of layout of art in "Liu Fa (Six Principles)", though his methods focused more on instinct and feeling. Moreover, there are enormous differences between Western geometric modeling and Chinese organic modeling as well as the displaying of line. In the book "Liu Fa", the section of "bone style of pen using" emphasized the use and attractiveness of lines by a brush pen. For the displaying of poetics, traditional Chinese arts contained more uncertainty, which provides more space for the audience to fill in with their imaginations.

The creation of Chinese calligraphy is more spontaneous than painting. Calligraphers need to create lines, determine the proportion when their brushes touch the paper, and build the abstract relation of structure between each brushstroke. Furthermore, Chinese calligraphy does not have to follow the rules as to what is the most appropriate proportion and what is the most fluent line; sometimes, those unexpected variations give the artwork more variety and emotion elements. Therefore, the training of calligraphy has its effect on aesthetic and variety in proportion and lines. The designer of the bird-shaped teapot has also devoted himself to calligraphy, both in learning and in creating, for a long period, and therefore, he could provide the bird-shaped teapot with the most appropriate and evocative contour and proportion.

4.1.2   Highlight styling personality to enrich emotional experience

Creativity is one of the key elements of Cultural and Creative Industry. The result of being creative is to offer a product freshness of some degree. A report released from the U.S.A. fashion color study center shows that there is a "Seven Second Rule" while people are purchasing products: when people are facing with numerous products, they only need seven seconds to decide if they are interested in the goods. Therefore, design products nowadays emphasize creative displays in order to impress the consumer at once. In addition, those feature products can usually display the special taste of the user, which fulfils the personalized emotional needs of the customers.

In Chinese poetry, "Po-Ti Fa (The Method of Bring up the Topic)" is a commonly used method which introduces the topic in the first few sentences by outlining the subject and grabbing readers'

attention. The bird-shaped tea pot successfully sets itself apart from other products in the current market and impresses the customers with its feet and pot peak.

4.1.3   Based on the current environment to meet up with the trend of the times

From the perspective of art history, the style of an era, the style of a region, and the style of each individual are the three required aspects for art design. In China, the style changing in different periods was obvious. For instance, the craft art of the Tang Dynasty was elegant, tidy and rustic at the beginning, but, in the middle term of the dynasty, the art style became deluxe and abundant, which had a strong link with the economics and politics states of the country (Yang, 2014). Jin-Hao (850-?AD) also stated in his article "Liu Yao (Six Essentials)" that the scene should be changed based on the season. If we expand its meaning, we can learn that art design should also follow the trend of fashion, in order to interact with its consumers.

Apart from style, the revolution of craft art has strong links with economic systems, social organization, social awareness, religion, custom, local crafts and material, science skill, living style, supply-demand based management and marketing, etc. (Chiang, 1999). Among all, local crafts and material bear a strong connection with design and manufacturing, to which the designers should pay more concern.

How to transfer the ancient classical style of Tao-Gui into a fashionable art piece was a big challenge and major goal for this design. The design draft was based on Cezanne's theory for cylinders, spheres and cones, which then combined with modern digital technology. The joint of spirit and form is the significant feature of Oriental aesthetics. The bird-shaped teapot, based on these values, hopes to attract consumers with "the admiration toward the historical remoteness and the appreciation of the modern elegance".

4.2   Behavioral level

4.2.1   Emphasize the nature of artifacts to conform to the habit of intuition

As a reaction to functionalism, Postmodernism emphasizes the spirit and impression of the products. However, when the focus is only on creativity and freshness, the function of goods would be overlooked, which will cause inconvenience in using the product. One of the principles for general design is affording a simplified and instinctive usage, which highlights the importance of "being easy to use" and "fulfilling the custom of consumers" of a product.

Genuine abstract arts have freed from the literal, descriptive, and illustrative tradition, in order to build up a modelling world which is based on the basic elements of painting. If a designed product completely discards its functional aspects, it will become a piece of abstract art which has lost connection with the utilitarian facet. Traditional Chinese painting, which follows the spirit of moderation, does not go for extremes; it has never reached the level of pure abstractness (Chen, 2005). The origin of the bird-shaped teapot was the Tao-Gui from ancient China. The shape and the feature of Tao-Gui have become the basic model for the bird-shaped teapot. Though the shape of the bird teapot is full of variety, it does not lose the connections with the functional aspect of a teapot at all, and people can easily understand how to use it the very instant of seeing it. Just like traditional Chinese painting, which tries to strike a balance between abstract and figurate, the researchers of this study believe that a great poetic designed tool should also find its balance between practical and decorative, which can be taken as an organic balance between right and wrong.

4.2.2   Concerned about the operation of the function to enhance the use fun

Socrates's theory emphasized the relationship between beauty, harmony and practice. He believed functions and purpose are the two conditions for beauty (Li, 2005). The leader of Japanese Mingei, Liu (1941/1993) once stated: one of the greatest mistakes of people nowadays is to limit the beauty of art in the visualized world, but ignore the beauty in the process of practical use. Indeed, for a well design utensil, a useful and functional using experience can be seen as an experience of aesthetics. Through this research, the researchers have noticed that tea specialists are still concerned about the function of a teapot. Therefore, even though we are no longer in the era of functionalism, we still need to take the practical aspect into account in the designing process. The bird-shaped teapot has been

recognized by tea specialists; they believe it is a practical teapot.

4.3   Reflective level

4.3.1   Inspire the audience with the bionic theme

Due to the requirement for "emotional design", the bionic design has become an essential method. As Klegin & Caldwell (2012: 17) noticed, "Borrow cues from the natural world. If people get even the slightest hint that something is alive, they are instinctively drawn to it."

Chinese traditional arts, based on the junction of human beings and nature, rarely depart from natural figures to reach the purely abstract level. Xie-He's "Liu Fa" proposed the rules of "conformity with nature" and "suitability for color" to express the spirit of nature. Tao-Gui, chosen to be the original format of the bird-shaped teapot, was the great art piece from the ancient Chinese. It is poetic, simplified and full of energy. The bird-shaped teapot, which inherits the feature of its senior, also contains the bionic basics.

4.3.2   Use the blank to leave the audience with creative space

Leaving imagination space for the audience is essential for creating poetic feelings. There was a saying in Chinese: "Words have limits but imagination does not." Another saying goes, "The scenery that is difficult to sketch should be described as if it is present; the meaning that is hard to capture should be comprehended beyond language." Chinese painting emphasizes the communication of poetic reading. Through leaving blanks, artists can express poetry successfully toward the audience. Blank leaving can be subsumed under Xie-He's "position management". With the contradiction between existence and non-existence as well as reality and unreality, the creation of poetic space is completed.

The design of the bird-shaped teapot also incorporated elements of blank leaving, in which the bird peak was symbolically used along with the three-legged structure and the tilting position to exhibit the lively feature of a bird.

4.3.3   Increase or decrease the morphological characterization to highlight the essence

Chinese painting emphasizes the expression of spirit. In order to reach this goal, only certain features of the subject are picked out. Jin-Hao (850-930 AD) proposed a very famous and important proposition in his "Bi-Fa Ji (Notes on Brush-Work)". He claimed that painting should capture the truth and spirit of nature. Inside the chapter "Liu Yao", he provided a footnote: "Erase the irrelevant, but leave the core". The thread of thinking is in line with Ji-Cheng's "Yuan Ye": The method of trimming hindering branches is proposed in gardening so as to eliminate so as to meet the need of suitability. These theories echo the significance of the "host and guest" relationship in Chinese aesthetics. The visual impact produced through the manipulation of the host-and-guest relation would help the audience to focus on the highlighted features in the artwork.

A poem does not need to be long to express a well-hidden meaning. Chien (1945/1997) pinpointed: "Chinese poets attempt to express the unlimited to the audience through limited paragraphs and words." The abstraction of visual images, just like poems, adds endless rhythmic flavors.

4.3.4   Link the relationship between objects to inspire the story

Poetry is a type of literature in which its context and form are highly related, which expresses beauty to the audience and is also suitable for singing. The content of a poem, which is the story or topic that it wishes to express, is the main inspiration for its readers. Traditional Chinese poems express their real meaning through praising objects. This is exactly as mentioned earlier: abandoning of appearance after having the spirit.

Starting from the relationship between spirit and form, the researchers designed this set of teapots as a pair, giving them the symbolic connotation of Sun and Moon. The three-legged bird-shaped teapot set symbolized Sun and Moon through the contradictions of Ying versus Yang and toughness versus gentleness. In addition, the differences in the proportion and the design of the handle of the teapot helped create the visual impressions of femininity (female bird) and masculinity (male bird). The complementation of Ying and Yang as well as toughness and gentleness reflects the traditional oriental philosophical basis: Tai Ji. As for the cup of the teapot set, the shape was inspired by bird's egg, in

addition to the consistent three-legged element, to symbolize young birds. Pouring the tea from the teapot into the tea cup feels just like parents feeding their young children, implying the endless inheritance of culture and the harmonious and joyful scene in a family.

According to Yang's (2014) study, the relationship between host and guest is an essential element for visual design. The bird-shaped teapot set characterizes this element, and displays the relationship of male, female and young birds through a harmonious properly-ranked proportion.

4.3.5   Combining traditional symbolism to bring about culture awareness

From the aspect of semiotics, traditional icons are not only a form of beauty and decorative art but also a symbolic system. German philosopher, Cassirer (1944) stressed that the visualized form of human culture such as religion, arts, history, etc. are all the active forms of symbol. In this logic, while patterns are becoming a form of art, they are also creating cultural icons at the same time.

On the lid (which symbolizes the comb) and the handle (which are the wings of the birds) of the teapot are drawn cloud patterns. Cloud pattern is an ancient and meaningful icon originating from China, which refers to the vitality of lives. It also carries meanings of godliness and luck; it is commonly seen on traditional craft works.

4.3.6   Attach morality tradition to enhance the goodness level

Attached to virtue qualities is an important oriental aesthetic. It can be seen almost everywhere and from every form of arts (Yang, 2014). People also like to seek those features which can refer to virtue in the world of nature and then bring the same aesthetic into the artworks that they create (Yeh, 2005). This aesthetic combines the values of beauty and goodness, which emphasizes the educational function of arts or communicates the virtue characteristics of artists. "Lun Yu" clarified that the master said of "Shao" that it was perfectly beautiful and also perfectly good; he said of "Wu" that it was perfectly beautiful but not perfectly good. Under the Confucian influence, being perfectly beautiful and perfectly good at the same time has become the traditional Chinese aesthetic. Not only in China, but the educational function of arts was also highlighted in ancient Greece. Pythagoras (580-500BC) believed that good music can complete one's soul while bad music would rattle people's minds. Plato (427-347BC) also stated: "We ought to supervise poets and force them to speak of only those good things in their works" (Li, 2005).

The bird-shaped teapot set emphasizes aesthetic and gentle warm colors, and intends to reflect the harmony within a family. This set combines the aesthetics and the leisure of tea drinking, in order to realize the purpose of purifying users' hearts.

### 4.3.7   Review the experiences of the past and looking forward to the future

Reviewing the development of arts, the symbolic meaning and modeling techniques within Tao Gui have forecasted the development direction of Chinese philosophy and artistic expression. The bird-shaped teapot inherits features from Tao Gui, which will help introduce traditional oriental aesthetics to the world.

5.   Questionnaire analyzed for the bird-shaped teapot

Having been praised in several awards, the design of bird-shaped teapot has reached a certain standard level. However, the question remains as to whether it also achieved its original purpose as a poetic design. The researchers added this design case and used a set of semantic vocabulary items "intriguing or boring" as the assessment for "poetic feeling" in a questionnaire survey on "Cognitive Study of Bird-shaped Teapot Preferences." According to the previous literature review, poetry contains the features of uncertainty and multiple meanings, which provide readers with a wide imaginative space. This feature also inspires an emotional connection with readers, leaving them with a strong impression. "Intriguing" is the most appropriate word for this feature. In addition, "attractive" is the other objective of poetic design and is also included in the questionnaire as an index.

5.1   Questionnaire design

Table 1: Stimuli sample for bird-shaped teapot questionnaire

| 1 | 2 | 3 | 4 | 5 | 6 |

| 7 | 8 | 9 | 10 | 11 | 12 |
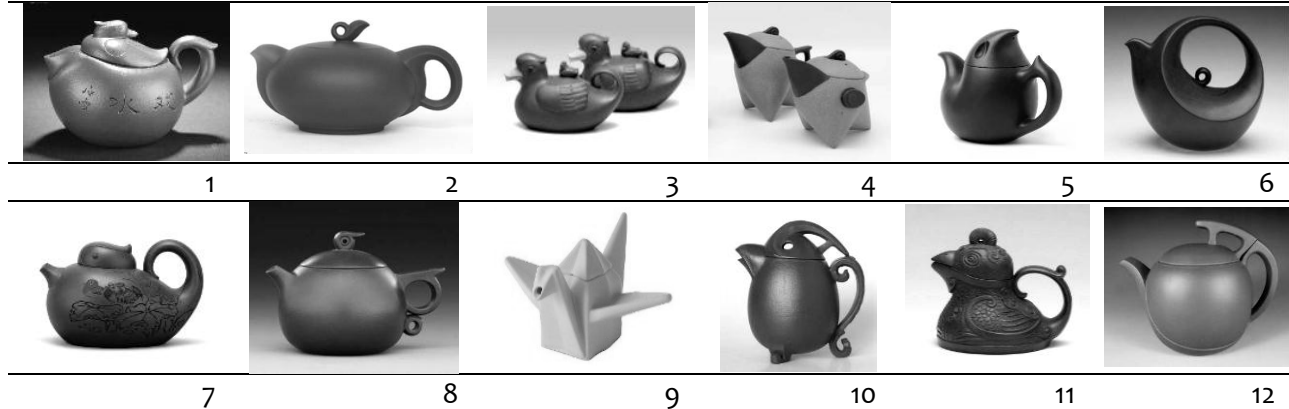
    a. Stimulus Sample: The researchers chose 12 bird-shaped teapot designs from the Internet (including design from the researchers themselves). The teapots had to be those designed by ethnic-Chinese artists, and needed to include most of the design features under discussion. The main research target was the shape of teapot, and consequently the questionnaire only provided black and white photos, to avoid color as a distractor in subjects' judgement (Table 1).

    b. Dimension and related attributes: The research topic is on the bird-shaped teapots. The two key elements generally related to the figure of teapots are visual experience and usage. Thus, our study chose Visual Experience, Practical Function, and Theme as the three main dimensions in the initial stage. After prediction, the study eliminated low reliability items, and decided to test on four dimensions based on the analysis of the Rotated Component Matrix: Feeling (5 items), Form (2 items), Function (3 items), and Theme (2 items) (Table 2).

    c. Preference review: With respect to the general evaluation, the questionnaire used Attraction, Exquisite Design and Utility as the three dimensions. Furthermore, in order to understand consumers' preference, the subjects also needed to choose their favorite teapot within the twelve.

    d. Measurement: Except that personal preference was a single choice made among the twelve objects, other adjective choices were provided for rating based on the Likert scale: 1 refers to "not agree at all", 2 refers to "not agree", 3 refers to "neutral", 4 refers to "agree", and 5 refers to "strongly agree".

    5. Background of subjects: (1) Gender, (2) Age, (3) Education level, (4) Experience with teapot usage.

Table 2: Four dimensions and their related attributes

Dimension	Questionnaire choices
Feeling	avant-garde/classical, novel/common, agile/stable, easy going/serious, intriguing/boredom
Form	harmony/contradictory, simple/complex
Function	practical/unrealistic, durable/fragile, convenient/inconvenient
Theme	excellent expression for birds' figures, can fully express the lively actions of animals

5.2   Questionnaires taking and the reliability and validity

    Subjects participating in this research were undergraduate students and graduate students, most of whom were females. 144 effective questionnaires were received. The main age groups were 18-30 and 31-50. Educational background was divided into four: products design related (n = 55), non-product design related field (n = 41), art related field (n = 23), and others (n = 25). As for the experience using teapots, 9 of the subjects reported "frequently", 52 of them "occasionally", and 83 of them "rarely".

    In the reliability and validity analysis, questionnaire had a good construct validity, internal correlation between all dimensions and the scale also reached the level of significance ($p < .001$), and Cronbach's alpha value demonstrated that the questionnaire had a good overall reliability and validity.

5.3   The order of preferences

    According to the data, the preferences of the subjects for the teapot did not have significant

differences. Subjects' preferences for the 12 teapots are shown in the Table 3. Among all, teapot No. 6 received 52.1% of the votes, teapot No. 4, which was designed by the researcher, received 16.7%, which was the second highest. Other ten teapots received relatively less votes.

On Table 3, the other three dimensions were also listed (attraction, exquisite design and model for the modern craft), which displayed the overall reviews for all the teapots. Teapots No. 6 and No. 4 stood out the most.

Table 3: User's preference and overall evaluation scores and ranking

No	Image	preference		attraction		exquisite		model	
		Percentage	Ranking	Mean	Ranking	Mean	Ranking	Mean	Ranking
1		6.3	3	3.37	6	3.73	3	3.45	7
2		2.1	9	3.26	8	3.57	7	3.43	8
3		0.7	11	3.07	11	3.36	10	3.07	11
4		16.7	2	3.73	2	4.06	2	3.92	2
5		2.8	8	3.33	7	3.64	5	3.48	5
6		52.1	1	4.46	1	4.35	1	4.25	1
7		0.7	11	2.91	12	3.04	12	3.05	12
8		2.1	9	3.08	10	3.26	11	3.19	10
9		3.5	7	3.48	3	3.64	5	3.47	6
10		4.2	5	3.47	4	3.65	4	3.61	3
11		4.2	5	3.22	9	3.47	9	3.4	9
12		4.9	4	3.45	5	3.55	8	3.55	4

5.4 The relationship between each dimension and feedback

5.4.1 The relationship between feedback and the four dimensions

The results of the Multiple Regression Analysis are shown as Table 4. In the regression formula, β refers to the inflection of the predictions. However, it showed that only Feeling and Theme, the two dimensions, had reached the level of significance (p <.001). In addition, only Function under the dimension of Attraction reached the level of significance (p <.01).

Table 4: The multiple regression for four dimensions and overall evaluation

Depend variable	Self-variable		B	SE	β	t
Attraction	Feeling		.361	.100	.275	3.601***
	Form		-.116	.109	-.078	-1.066
	Function		.185	.070	.187	2.662**
	Theme		.479	.076	.450	6.259***
	R=.683	Rsq=.467	F=30.435***			
Exquisite design	Feeling		.491	.080	.409	6.144***
	Form		-.001	.087	.001	.010
	Function		-.003	.056	-.037	-.597
	Theme		.482	.061	.496	7.909***
	R=.771	Rsq=.594	F=50.844***			
Model for the modern craft art	Feeling		.517	.084	.418	6.156***
	Form		-.064	.091	-.046	-.697
	Function		-.021	.058	-.022	-.353
	Theme		.492	.064	.491	7.678***
	R=.760	Rsq=.578	F=47.534***			

*P＜.05　　**P＜.01　　***P＜.001

5.4.2　The relationship between attribute index and feedback

Based on the relationships between feedback and the four dimensions, we chose the dimensions that reached the level of significance, and submitted them to a Multiple Regression Analysis (Table 5). In the dimension of Attraction, the two options "convenient/inconvenient" and "intriguing/boredom" reached the level of significance. As for Exquisite Design and Model for The Modern Craft, "novel/common", "intriguing/boredom" and "excellent expression for birds' figures" were the most important elements toward general review. With the β values which reached the threshold of significance, we can confidently confirm that "novel", "intriguing", "convenient" and "the expression of birds' figures" determine whether a work receives positive feedback. Among all, "intriguing/boredom" was the option that the researchers used as the index for "poetic design" which stood out in the result.

Table 5: The multiple regression analysis for effective variables and overall evaluation

Dependent variable	Self-variable	B	SE	β	t
Attractions	avant-garde/classical	-.148	.113	-.136	-1.311
	novel/common	.116	.124	.113	.933
	agile/stable	.147	.098	.139	1.498
	easy going/serious	-.038	.098	-.036	-.390
	intriguing/boredom	.249	.105	.229	2.376*
	practical/unrealistic	-.039	.103	-.043	-.376
	durable/fragile	-.098	.112	-.107	-.879
	convenient/inconvenient	.325	.128	.334	2.539*
	Excellent expression for birds' figures	.263	.146	.249	1.799
	Express the lively actions of animals	.129	.146	.128	.890
		R=.713	Rsq=.509		F=13.761***
Exquisite design	avant-garde/classical	-.151	.086	-.151	-1.753
	novel/common	.271	.094	.289	2.891**
	agile/stable	.030	.074	.031	.407
	easy going/serious	.035	.071	.035	.488
	intriguing/boredom	.282	.080	.284	3.529**
	Excellent expression for birds' figures	.394	.108	.409	3.645***
	Express the lively actions of animals	.048	.105	.052	.453
		R=.805	Rsq=.648		F=35.830***
Model for the modern craft art	avant-garde/classical	-.174	.093	-.169	-1.861
	novel/common	.339	.101	.350	3.340**
	agile/stable	.053	.080	.053	.663
	easy going/serious	.029	.077	.029	.377
	intriguing/boredom	.218	.086	.213	2.531*
	Excellent expression for birds' figures	.239	.117	.241	2.046*
	Express the lively actions of animals	.200	.114	.211	1.763
		R=.783	Rsq=.613		F=30.732***

*P＜.05　　**P＜.01

5.5　Multidimensional multivariate scale analysis

In order to understand the correlation between each stimulus sample and all attributes, we used Multidimensional Multivariate Scale Analysis to examine the data that we received.

Firstly, we analyzed each dimension in the questionnaire and found out that the Kruskal's Stress = .09745 and the RSQ = .95673. This implies that using two dimensions would be sufficient to identify the spatial relationship between the twelve samples and the fifteen attributes. From the aspect of cognitive partial distribution (Figure 2), the three indicators from "overall review" and the four indicators from the "feeling" dimension were distributed near the X axis, which means that overall review had a close connection with the "feeling" dimension. After reviewing the result from Multidimensional Multivariate Scale Analysis, we believe that the subjects' consent toward the "feeling" dimension has the key influence in the overall review.
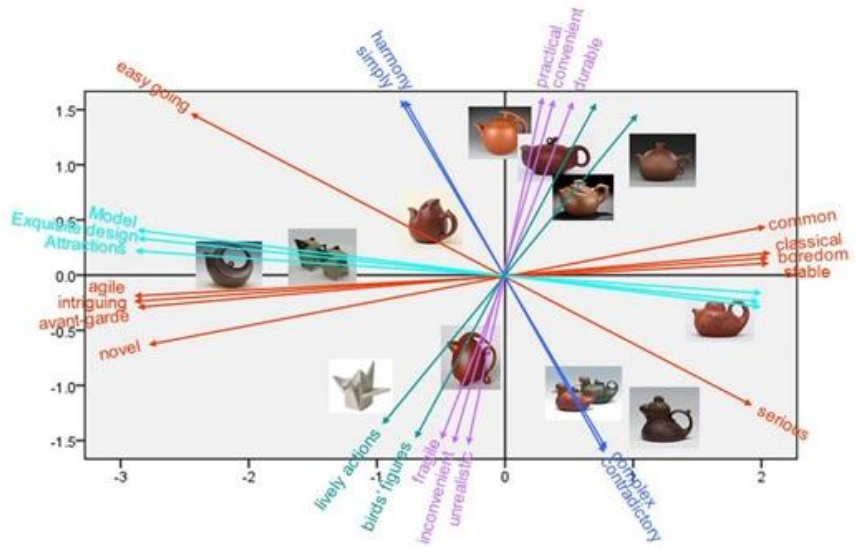
Figure 2: The cognitive map of the 12 samples with all attributes

Secondly, we analyzed the 5 indicators in the "feeling" dimension, with the Kruskal's Stress value = .01533 and RSQ value = .99902. The former is slightly higher than 0.01, and the latter is close to 1. This once again confirmed that using the two dimensions would suffice to profile the spatial relationship between the samples and dimensions.
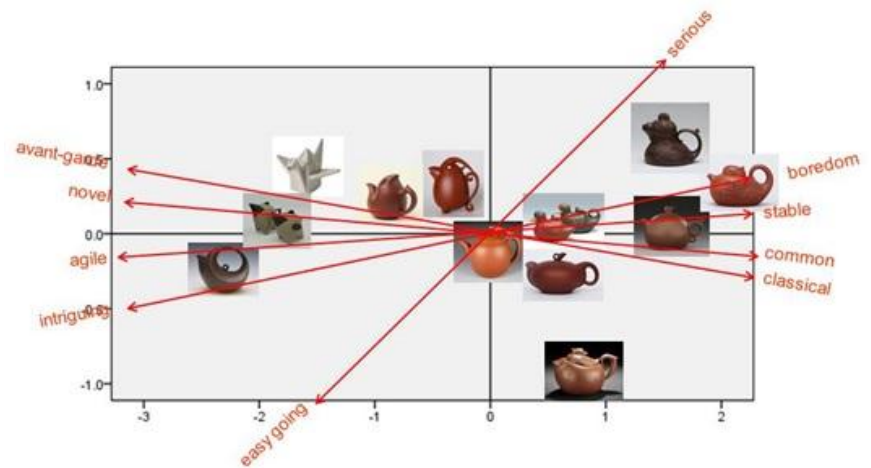

Figure 3: The cognitive map of the 12 samples with 5 attributes of feeling

Based on its spatial distribution (Figure 3), "avant-garde/classical", "novel/common", "agile/stable" and "intriguing/boredom" were distributed near the X axis, and they appeared to be symmetrical. Moreover, the top four sample items with the highest rating in "overall review average" were all distributed in the second and third quadrant. Furthermore, the top two of the four were close to the X axis and farthest from the origin, and also inside the fan range of the four indicators. Lastly, these two samples actually received the top two with the highest rantings in subjects' preferences. This result showed that "avant-garde", "novel", "agile", and "intriguing" are the four indicators that fulfill the taste of current users.

5.6   Designing related semantic vocabularies' scores and rankings

Except "intriguing" which was used to test the outcome for poetic designing, the other semantic vocabulary items were related to the designing strategy: for instance, "highlighting the feature characteristic and enriching the emotional experience" (novel), "meeting up with the trend of the times based on the current environment" (simple), "emphasizing the nature of artifacts to conform to the habit of intuition" (practical), "being concerned about the operation of the function to enhance the use fun" (convenient), etc. In the Table 6, the scores and rankings for the designs of the samples are provided to indicate the agreement of subjects regarding the results of our research project.

According to the table, sample No. 4 (which was the work of the researcher) received the second highest score on both indicators "intriguing" and "novel", which demonstrated that the method of creating was better recognized in these two facets. Moreover, based on the Multiple Regression Analysis

and the Multidimensional Multivariate Scale Analysis, these two attributes "intriguing" and "novel" are the factors that are the most relevant to the acceptability of a product.

With respect to the remaining four indicators, their rankings were mostly distributed in the middle range; moreover, most of them did not reach the significance level, indicating that they were not appropriate indexes. Reviewing results from Table 3 and 6, we considered that the "simple" indicators might not be able to provide the imaginational space required by poetic design due to the lack of introspection. If the simplified design can also contain symbolic meanings, it may be easier for consumers to understand and recognize.

The indicator "excellent expression for birds' figures" incurred a split result, contra our prediction. A possible account for this is that the term "excellent" was too subjective. Nevertheless, some remarks could be made that works that were created in a more concrete fashion did not gain positive feedback in general." The sample item which was designed by the researcher was based on the design of Tao-Gui; that is, its shape was between "abstract" and "concrete".

The two indicators "practical" and "convenient" might have been constrained by the method of presentation in the questionnaire; it was difficult for the subjects to judge merely from the pictures, who were lacking the experience of making tea. The teapot No. 4 that the researcher designed was intended to fulfill the purpose of function in its production and was recognized by the tea specialists after their trial and use. However, since it enormously differs from average teapots with respect to shape and form, the feedback from the subjects were only moderate.

Table 6: Designing related semantic vocabularies' scores and rankings

No	Image	Intriguing		Novel		Simple		Practical		Convenient		Bird figures	
		Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank
1		3.56	4	3.09	10	3.50	7	3.29	4	3.41	4	3.77	2
2		3.27	7	3.11	8	4.26	1	3.53	3	3.45	2	3.08	10
3		3.20	10	3.12	7	2.20	11	2.27	10	2.47	11	3.74	3
4		3.97	2	4.38	2	3.78	6	2.97	6	3.06	6	3.39	7
5		3.46	6	3.83	4	3.99	4	2.99	5	3.17	5	3.15	9
6		4.30	1	4.62	1	4.16	3	2.57	8	2.80	8	3.97	1
7		2.91	12	2.44	12	2.36	10	2.78	7	3.03	7	3.26	8
8		2.97	11	2.55	11	3.83	5	3.69	1	3.57	1	2.94	11
9		3.68	3	4.28	3	2.97	8	2.08	11	2.19	12	3.73	4
10		3.53	5	3.79	5	2.73	9	2.43	9	2.70	9	3.62	6
11		3.22	9	3.10	9	1.73	12	2.22	12	2.59	10	3.66	5
12		3.27	7	3.27	6	4.21	2	3.59	2	3.45	2	2.87	12

5.7 The result and conclusion for the questionnaire

Since the questionnaire was not designed specifically for the "poetic design" and its design strategy, the result cannot really provide sufficient information for the study. However, the relevant analysis has shown that "poetic displaying" (intriguing) is the key element for creative products. This result is very precious and important in that it shows the value of "poetic design".

The reason of how and why each dimension affects the users' preferences are discussed as follows.

5.7.1 The abstract and overall feeling level has a bigger effect on user's preferences

We are in the era of "emotional consuming" when emotional design has come under the spotlight. The result of the questionnaire has confirmed this fact. On the basis of the two data analyses

presented earlier, the abstract and overall feeling have the strongest impact on overall evaluation. The key words "novel/common" and "intriguing/boredom" among all were the most influential.

5.7.2   Form does not have immediate influence to users' preferences

As shown in the previous discussion, the "form" dimension in the questionnaire such as "harmony/contradictory" or "simple/complex" did not have the key influences. Let us look at the top two ranking samples No. 6 and 4. The "harmony/contradictory" dimension for No. 6 was the highest, yet No. 4 was ranked eleventh, which suggested that the two had distinct performances. With regard to the "simple/complex" dimension, one was ranked third while the other ranked sixth.

In general, "harmony" and "contradictory" are different ways of expression. On the other hand, in the dimension of "simple/complex", people tend to prefer simplified design. However, none of the above is required to be the key elements for modern design. In sum, a design with a symbolic meaning and a simplified figure seems to gain the most resonance. This kind of design is thought-provoking so as to produce an intriguing effect on perception.

5.7.3   Functions affect the purchasing wiliness of buyers

The "function" dimension did not bear significant correlation with "exquisite design" nor with "model for the modern craft art", the two facets of evaluation taken from the by-stander perspective. Yet, the "function" dimension had significant correlation with "attraction". In the further analysis, "convenient/inconvenient" not only reached the significant level but also obtained the highest β value among all dimensions.

5.7.4   The "Theme Topic" has high effect on users' preference

The two attribute indicators for "theme" did not seem to have strong correlation with the three general reviews as the "feeling" dimension does in the Multidimensional Multivariate Scale Analysis. However, in the Multiple Regression Analysis, "theme" was highly correlated with all three general reviews. Firstly, it had significant correlation with them. Secondly, "excellent expression for birds' figures" not only reached significance level with "exquisite design" and "model for the modern craft art" but also obtained a high β value.

On the other hand, though "excellent expression for birds' figures" was not correlated with the "attraction" dimension at a significant level. However, with the high β value, we can conjecture that morphological bionic modeling can be a key element for the creative industry.

6.   Conclusion

In the era of perceptual consumption, "emotional design" has come into the spot light as well. "Kansei Engineering" was nurtured under this trend: using the methods of engineering to probe the emotional needs of consumers and transform them into the elements of design. Kansei Engineering emphasizes the status of empirical research, which can be divided into "determination of external physiological sensation" and "determination of intrinsic psychological sensibility". Since the notion of Kansei Engineering was put forth in the 1970s, it has become one of the most effective design methods, and received great success. However, as engineering study usually concentrates on analyzing, the results obtained from it are often arbitrary and purely operational elements. Thus, it will meet its limitations when it comes to emotional studies.

According to the findings of the questionnaire used in this research, the "feeling" dimension did bear stronger connections with consumers' preferences towards products; the abstract phrase "intriguing/boredom" was the most significant element. "Intriguing", which is the feeling that can be provoked from poetry, inspires people's imagination with those features hiding beneath the surface and allows them to enter the level of reflection. While "poetic design" becomes a trend, it also turns into a goal that all the designers would like to achieve.

Due to the nature of poetry, ambiguous and full of implications, the operation for poetic design promises to be complicated. Poetry is in the field of literature and its creation process is usually categorized in the art field. Therefore, through the discussion of aesthetics and art theory, this study pursued more specific methods for "creative practice" from the traditional Chinese poetry wisdom.

Lastly, the design from the researcher has received positive feedback in both the competition

and the questionnaire rating. The poetic-indicator, "intriguing", was also successfully fulfilled. From this case, the researchers summarized twelve practical strategies for future studies.

As to the twelve operative strategies, with bird-shaped teapot design as the case in this study, we employed the methods as follows:

a. Design objects with reference to bionic themes in imitation of the morphological forms of creatures.

b. Impart traditional connotation to works through the reference to the form and image of related ancient artifacts.

c. Abstract the most crucial morphological features, surrendering the non-necessary details.

d. Extract the main morphological form and structure through geometrical objects, which is useful to computer-assisted design.

e. Adorn local features through traditional significant symbols.

f. Focus the most attention on the aesthetic features such as proportion and contour using traditional Chinese organic form and structure as the basis.

g. Do not neglect operative functions while taking care of form and structure.

h. Design a whole group of works to connect members with the storyline.

Poetic feelings are mostly based on introspection. Therefore, in the twelve design strategies research set up, seven of them were related to the "reflective level", while three of them were related to the "visceral level", and the other two were related to the "behavioral level". The visceral and behavioral levels can be taken as the basic needs for well-designed practical products and for creating visual beauty and convenient practice. The reflective level is essential for creating poetic feelings for the product; however, designers can choose only a few of these strategies depending on individual cases.

"Perceptual Engineering" started from the physical level and emphasized objective measurement and quantitative analysis, and aimed for limiting the emotional dimension. This provided industrial products which emphasized the behavioral level, with irreplaceable value. "Poetic design" is based on the psychological level, hoping to provoke people's emotion and memory by the process of introspection, which will increase the visual impact of the creative products. One was conducted from the rational aspect while the other from emotional. Perceptual Engineering and Poetic Design are both essential for the field of creative design and cannot be substituted by each other.

Before this article is closed, some pedagogical implication is involved. As explicated in our research, poetic-aesthetic characteristics can be embodied in the design of artifacts. In order to boost Poetic Design, we should emphasize the link between arts and literature. More specifically, our course plan should include interdisciplinary activities so as to encourage designer to enhance their interest and proficiency in literature and philosophy. By so doing, the application of humanities in design and arts can be more significantly extended, and the design of artifacts is expected to have promising potential to reach the reflective level of mind.

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