

A Study on Traditional Paper-Cut Art Endowing Products with Creative Imagery: Taking Alessi as an Example

Tzu-Chiang Chang¹, Chien-Chih Ni², Po-Hsien Lin¹, Rungtai Lin^{1*}

¹Graduate School of Creative Industry Design, National Taiwan University of Arts, New Taipei City

²Department of Cultural Creativity and Digital Media Design, Lunghwa University of Science and Technology, Taoyuan City

Email: *rtlin@mail.ntua.edu.tw

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Abstract

Traditional Chinese paper-cut art has been deeply influenced by traditional cultural thoughts. All of its performance themes, forms, and results show its connotation and philosophy. Its patterns have the image of external result in form and the meaning of internal cultural connotations, which are combined to form the core implication behind a work. However, as a modern art and design trend as well as theme, it should be innovated and applied more diversified and broadly. This study aims to explore how to make the traditional paper-cut art in modern design capture the advantages of Western products in combination with their own cultural advantages through an executable design conversion application. By doing so, products can be endowed with more and richer connotations and innovative elements, thereby enhancing the added value of products in line with the trend of modern product design. In other to achieve this objective, this study took the commercially available products of Alessi, an internationally renowned Italian brand, as the collection objects. The research results showed that the three attributes of the product imagery preferences were shape, color, and structure. The most popular attribute preferences in the products were quasi-stereoscopic in shape, asymmetry in structure, and red in color. In the overall preference analysis, the most imagery paper-cut was product 6 (silver Paper napkin holder Cactus). The most-favored product was product 5 (red Leaf fragrance diffuser Shhh). The results of this relevant data study could improve paper-cut art design in line with the trend of modern art in addition to the guidance of future product innovation design thinking.

Keywords

Paper-Cut Art, Product Innovation, Design Conversion, Alessi

1. Introduction

The traditional Chinese paper-cutting art is a form of decoration used in rural celebrations. In the past, it was considered a minor craft practiced by artisans or women and did not receive much attention from rulers and scholars. This led to it being used and discarded, as it is also prone to damage from moisture and decay, making preservation difficult. As a result, very few artifacts and historical records of this art form have been passed down. However, it has been deeply influenced by the “Chinese traditional cultural ideology”. The style of traditional paper-cut art is unique. It is a pattern expression that differs from Western painting due to the combination of the image of external pattern form and the meaning of internal implication. Creators use scissors to determine the subtle relationship between the shaping and the space along with the direction of the idea between the blank paper and the form. The main content of the hollowed-out size is symmetrically integrated in a flat and neat silhouette. This feature has also become the most important characteristic of paper-cut art. However, seemingly as a neglected group creation system, it has cultural connotations based on Chinese cultural thoughts that extend to the core value of the work. It is not only firmly rooted in the minds of people but also shoulders a contemporary significance of culture and art. It must transform through “culture” into “creativity” and then lead to “value-added” product design. In other words, the key focus is on how “cultural creativity” can “add value” and enhance “added value”. This is the direction we are striving for (Lin, 2005b). Although the old culture is not bad, it should be more fashionable and more in line with modern needs. Thus, how to enhance the added value of products and discover more implications and allusions behind works have become the closely related topics regarding traditional and modern works. In this context, technology will continue to advance over time. Moreover, product innovation has always been the driving force of economic growth. Its purpose is not to find or develop technologies, but rather to give value to these technologies and find the most meaningful product applications. In other words, design is no longer a breakthrough in function and form, but more importantly, represents the significance of the product (Verganti, 2009). In terms of traditional culture, countries in Asia were valued for their cheap labor and favorable investment environments; future contributions must be the excellent value of traditional culture. The issue is how to make it fashionable and infuse this area’s rich traditional cultures into product and service design (Feng, 2002).

From the perspective of design thinking, Chinese culture has attracted global attention to the products of the global consumer market in recent years. It has gradually lost its unique identity due to similar functions and forms. Therefore, how to present the characteristics of products today has become increasingly important. The rich and diverse ethnic cultural characteristics of Asia, including Taiwan, have potential application value in the field of design. At a time when cultural and creative industry issues have received global attention, the cases of applying cultural characteristics in the design industry have also increased year

by year. However, most of the current cultural products are commonly presented in the imitation of form or the transfer paste of emblazonment, often ignoring the expression of cultural connotations and failing to truly improve life culture through product design (Lin, 2005b; Li & Ho, 2009; Li, 2007). Therefore, the emphasis on the product value of cultural connotation has become a key element in the design thinking process and is worthy of in-depth discussion. Regarding the application of traditional cultural characteristics to modern product design from the perspective of design application, Ho, Lin, and Lin (1996) discussed the representation of cultural messages from the perspective of design message communication. They analyzed cultural elements in design and put forward key points and suggestions for cultural commodity design. Yang and You (2008) studied the intention of incorporating personality and emotion into the design connotations of products from Alessi, a well-known Italian brand, in their research on product design and marketing. Lin and Yu (2005) also took symbols of Italian design as the imagery for the reference of product design and development. These principles, which originally valued shapes with functions in the early days, have developed into a variety of design thinking. Design has been no longer just pursuing the function and beautiful shape of products, which should devote itself to the inheritance and maintenance of culture and pay deep attention to social issues, so as to reorient people's lifestyle.

Today, it has become an innovative element of cultural design. In addition to inheriting history, it is necessary to increase the interpretation of popular patterns. Apart from making it meet the needs of modern society, the cultural connotations and significance behind a work are more important. After all, there are too many mass-produced products, and innovative works with a story and connotation are lacking. Therefore, in the development of cultural creativity, emphasis is placed on how culture adds value to design creativity, establishes the design industry, forms an aesthetic economy, and creates value (Lin & Lin, 2009). This added value is the best application for communicating traditional and modern while improving the products and developing the social economy. To this end, the National Palace Museum (Taipei) commissioned the Taiwan Creative Design Center to implement the Old is New Fashionable Palace Museum project in 2005. Using the old cultural elements of the Palace Museum as the source of creative design, they tried to cooperate with Alessi to enshrine the concept of old culture, new fashion, giving new life to traditional culture and art under the integration of old and new cultures. Thus, it has promoted the cultural relics of the National Palace Museum (Taipei) to actively enter the life, stepping towards internationalization. Moreover, the trend and creative thinking of Italian design style have not only directly affected the current design trend but also influenced our current design style.

Therefore, how to capture and utilize the advantages of Alessi's product designs in combination with our own cultural advantages when applying traditional paper-cut to future shape design should be a topic worth discussing. Therefore, this study had the following three research objectives:

1) To establish traditional paper-cut as the design goal in order to integrate the imagery generation system.

2) To capture the imagery characteristics of Alessi products in order to add value to the paper-cut art innovation.

3) To master the cultural connotations for the conversion step in order to establish product innovation application.

2. Literature Review

2.1. Generation System of Traditional Paper-Cut Art

Traditional paper-cut art originated from the folk and integrated into life. It has retained its form and characteristics in the generation, application, and inheritance in addition to objective factors, making its content rich and colorful. The generation process behind these patterns has been deeply influenced by traditional Chinese cultural thoughts. From the image of the external basic form to the meaning of the internal connotation characteristics, all show the cultural connotations and philosophy. These unique thoughts with a certain saying or usage are summed up together, that is, the unique performance of traditional paper-cut patterns. It dissolves into a certain connotative meaning in the features of neat cutting and hollowed-out silhouette works. Furthermore, it forms a collective law through cultural inheritance. It emphasizes the use of subjectivity, intuition, and ideas to understand the objective world, focusing on spirituality and emotions, with the goal of reconstructing a beautiful ideal. It has its own complete artistic system (Zhu, 2005) and serves as a form of cultural art. It represents a traditional system, thus establishing its own unique generation system.

2.1.1. External Basic Form

The external basic form of traditional paper-cut art patterns is based on the creators completing the concrete result (image) of the beautiful pattern form in their mind through the blueprint (meaning) of cultural connotation and inner conception. Tao (2003) pointed out that the generation of paper-cut art is often a certain quality that is exaggerated and associated. The shape and use are modified and compared, thus getting the subjective recognition and strengthening. Its combination law has five characteristics: 1) the homophonic method, which conveys the theme characteristics of the pattern content with the characteristics of Chinese characters with similar pictures and sounds; 2) the symbolic method, in which people give certain ideologies to the pattern with the help of animal and plant attributes and the forms of things; 3) the indicative method, in which people give image and artistic expression to the pattern on the basis of being familiar with and having a certain reason; 4) the association method, in which people present the significance of the pattern itself through the association of amazing and moving stories; and 5) the synthesis method, in which people use a pattern composed of a number of auspicious factors to give the pattern a richer implication. These characteristics are shown in **Figure 1**.

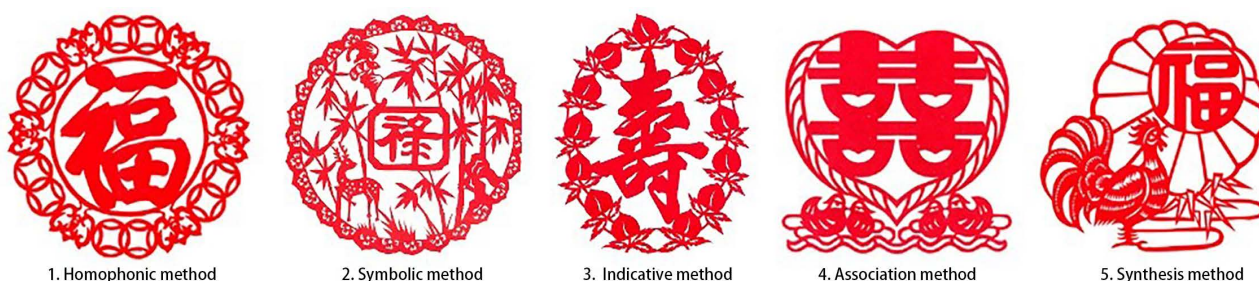


Figure 1. The basic forms of traditional paper-cut art (Source: Yang, Yang, and Wang, 1989).

Zhang (1996) pointed out that traditional paper-cut art, limited by the characteristics of paper and the application of tools, is different from that of general painting and has four style characteristics in the process of pattern execution. The first characteristic is line connection and disconnection, in which hollowed-out shapes are cut out or engraved on paper for paper-cut work. If any line is cut through, the shape will be incomplete and will not become a complete work. This is the basis of paper-cut shaping. The second characteristic is composition shaping patterning. Since the composition of paper-cut art is limited by the paper used, it is difficult to show space and hierarchy. Paper-cut is mainly based on the correlation of the pattern in the content by arrangement and combination, showing a symmetrical and balanced combination of patterns. The third characteristic is the beautiful rhythm of the pattern, which considers how to give up the secondary part for the theme of paper-cut, master the main characteristics, make the pattern clear at a glance, and form a clear theme with beautiful lines of artistic work. The fourth characteristic is simple and bright color. In the application of pattern colors, similar colors or adjacent colors should be less applied. It should focus on coordination in the contrast color, so that the main color has a clear sense.

2.1.2. Internal Connotation Characteristics

The expression of the internal meaning of traditional paper-cut art is based on the creators taking the connotation of the cultural foundation as the basis to complete the imagery expression of the pattern, and the significance presented behind is the core content of the work. It has three characteristics. The first characteristic is the cultural implication of imagery psychology. Wang (2009) proposed that the imagery of paper-cut is a collective phenomenon inherited by the ethnic for a long time and is a form characteristic projected into the mind. The basic component of its structure is the image, and the image of paper-cut is rich in content. Its core component is meaning, which is attached to the image of paper-cut by the public according to a certain purpose. The significance system of folk culture is thus constituted through this, revealing the core source of implicature in the image symbol. Although traditional art is truth-seeking, it is not completely realistic. On the basis of realism, it still has abstraction and imagery, but it pays more attention to the shaping of the imagery to express the image in the creators' mind. This cultural basis also affects the content and the form of

paper-cut. Taking the application of pattern colors as an example, bright red is the color of happiness and luck, while white represents the color of funeral (Wang, 2001).

The second characteristic is the way of neutralization with balanced symmetry. Traditional paper-cut art has a profound foundation of Chinese culture, which has influenced the expression connotations and form of paper-cut. They all have something in common, namely, the pursuit of imagery in art, expressing artistic conception, and using neutral expression techniques to convey aesthetic consciousness. Therefore, designers first seek neutralization in the design of paper-cut structures. They align the center of the pattern with that of the paper to find the center point. Then, designers use cutting and folding techniques to complete the beautiful pattern design. Therefore, the structural design of paper-cut must lead to neutralization. Peng (2007) pointed out that Zhong and he are two concepts that are both close and separated. Zhong refers to a correct principle, standard, or method to deal with the contradiction of things. He is the unity of various things or the unity of opposites, which is a type or mechanism. Although the two are different, they cannot be separated. Zhong embodies the correct principle of unity and the appropriate measure, while he represents the realization of the unity of contradictory parties. The integration of the two into one is closer to the fundamental law of the development of things.

The third characteristic is the way of consummation with a principle of round sky and square earth. Paper-cut art is deeply influenced by the doctrine of the mean of Chinese Confucianism and the fang yuan (square circle) thoughts in the Book of Changes. Everything is balanced and consummated in accordance with the rules. For this reason, doing something perfectly is called yuan man (well-rounded), and eminent monks are called yuan ji (parinirvana), which is based on the circle. This shows that the circle is the highest ideal of all things. From a design perspective, a square (□) represents stiffness and rules, while a circle (○) consists of a simple curve, forming a surface, which means smooth and perfect. Furthermore, thinking from a philosophical perspective, squares and circles are just symbols of things in general. They are the concepts of square and circle when their profound philosophies are applied to the paper-cut art, making them have a causality with the folding and the result of paper-cut. A square paper has the maximum paper area. The circular paper form needs to be folded through the paper to obtain the center point, thereby cutting into a circular form. Zuo (1998) indicated that the advocacy of perfection is one of the important characteristics of Chinese folk-art shaping. In other words, nicety and happiness represents nothing more than the search for unity in diversity as well as harmony and integrity, in part or whole. This concept forms the idealized psychology of the completeness and consummation of things. Its characteristics lie in the pursuit of a “full, whole, complete, and colorful” aesthetic feeling. The concept of uniform symmetry, consummation, and completeness is emphasized in the layout (Tong, 1996). Therefore, a circular and complete pattern expression form is emphasized in folk art works, which includes paper-cut art.

2.1.3. Correlation between Paper-Cut Art and Alessi Products

Imagery, said in the *Xi Ci I, The Book of Changes*: “The books are not full of words, the words are not full of meaning, so the saints set up images to express fully” (Nan, 2006). When people’s inner thoughts cannot be correctly expressed in words, they can be understood through the presentation of external forms of image and the law of the internal meaning. While image has the physical image, shape image, mind image, imagery, and other different usages partial to the object and the mind. Its implication is that thinking captures specific images and perceptible things (Chen, 2020). Therefore, imagery is generated by the external stimulation of the senses, which is regarded as a mental image or impression. The mental image is synthesized by the external image or image perception through the feelings at the mental level (Peng & Chang, 2000). This shows that an abstract state can express its content or result in a figurative form. As far as the generation system of traditional paper-cut is concerned, the image in the external basic form is the embodied pattern performance based on cultural connotations through the combination of meaning with the inner implication as the core. In terms of the auspicious meaning of paper-cut art, the five of “the five blessings have descended upon the house” refers to the number. Blessing (*fú*) has the meaning of good luck in Chinese, and it is an abstract concept. In the pattern combination, the harmonic pronunciations of the Chinese characters for bat (*fú*) and blessing (*fú*) can be used to complete a pattern form with cultural connotations in the form of a bat. This kind of abstract cultural connotation and philosophy, using a figurative pattern conversion process, gives paper-cut art more abundant forms of expression. As far as the shape of the product is concerned, imagery is the intuitive association generated by the user through the sensory reception of the form of the product. It is often related to the user’s life experience and cultural background and is a psychological process (Nagamachi, 1989). However, imagery creates the symbolic thinking of the ethnic through the accumulation of the collective unconscious experience of the ethnic, making the culture develop continuously through social change. These huge symbol systems are not only the fruits of cultural construction but also the instruments of social education. Moreover, they provide rich resources for Chinese aesthetic culture (Ye, Sun, & Ren, 2017). In addition to the characteristics of the background based on Chinese culture, more of these huge systems created by the paper-cut art is people’s psychological expectations for good vision. These basic characteristics of intercommunication are the highest rule and significance of the pursuit of paper-cut art.

With the passage of time, modern designers have attempted capture the characteristics of Western products in combination with their own cultural and artistic advantages, so as to add a new image interpretation of traditional paper-cut art. The added value of products is thus enhanced with innovative design thinking in order to create future opportunities for paper-cut art. Alessi, a world-renowned Italian household brand, took cultural elements of the National Palace Museum (Taipei) as a source of creative design in 2005. Through the blend of old and new

elements, it made the cultural relics of the Palace Museum into life towards the pace and popularity of internationalization. Its products also added cultural ambience and historical sense, which could be described as mutually beneficial. Alberto Alessi, the third-generation head of Alessi, has set manufacturing with a direction of the dreamed home that pursues innovation, art, and beauty. In the company's philosophy, the company does not need to be large, but being good, where only philosophy is presented, not requiring strategies. History has been taken as the source of product characteristics, emphasizing that some values in handicrafts can be applied in mass production. The company is opposed to ordinary people's interpretations of commercial products and has chosen to stand on the front of traditional art, aiming to encourage consumers to pursue their dreamed needs. The company also constantly offers a wide range of new works to satisfy consumers with a passion and keen curiosity for culture. These works exert cultural value in the process of applying industrial technology and traditional handicrafts. Design, on the other hand, is seen as art and poetry. This is a mission—a universal philosophy that expresses the worldview, outlook, and characteristics of these companies. Consumers buy products because of their poetic and picturesque characteristics. However, simple shaping will make people lose interest in products. Many choices in life are decided by emotions. Therefore, consumers will pay attention to the social aspects of cultural communication (Lin, 2005a). Pan and Yang (2008) argued that Alessi's design concept makes it different from an ordinary company and more like a research laboratory for applied art that acts as an intermediary between designers and market needs. Design is an art and a general principle. The above research shows that the cultural arguments of Alessi's corporate philosophy and design concepts and those of traditional paper-cut art are common. Moreover, these successful cases provide examples of innovation for paper-cut art.

2.2. Attributes of Paper-Cut Design Conversion

The connotation of cultural products is culture, and product designs that include culture as an added value have gradually become the mainstream of modern design. However, there are many uncertain factors in the process of designing a concept. How to seek a reasonable conversion between culture and products based on the attributes of the three levels of culture, so as to extract the cultural connotation elements of paper-cut patterns. Moreover, it should think about the causality among each level, so as to give more added value to products and achieve the most meaningful product design.

Norman (2004) pointed out that product design must consider three levels, corresponding to product characteristics are as follows: 1) the visceral level, which is an external characteristic that includes the appearance, touch, and feel of a product; 2) the behavioral level, which refers to user pleasure and utility, including function, performance, and ease of use; and 3) the reflective level, which refers to self-image, personal satisfaction, and memory, including feelings, emotions, and cognition. However, designers must know for whom they are design-

ing a product. Any practical feeling contains all these three levels, and single levels are rarely involved alone in practice. It is most likely to come from the reflective level if there is an example with only one level inclusive. This level is where the inner emotion of the user is triggered. Leong and Clark (2003) proposed a three-level architecture of product design that was divided into the outer level, including tangible items and materials; the mid-level, involving acts of use and rituals; and the inner level, containing ideological and intangible spiritual that form design arguments integrated with the cultural space. Hsu (2004) classified the three essential attributes of cultural design through a literature discussion. Hsu and Lin (2011) further integrated this cultural spatial framework to clearly explain how to take into account the factors in the development of design in terms of physical, behavioral, and ideological correspondence. Specifically, it applied to the three attributes of cultural product design as follows: the outer or physical level (tangible level) belongs to the physical and material transfer applied to the outer form, including color, texture, shape, surface emblazonment, line, detail treatment, component composition, and other attributes. Designers use attributes such as shaping features, colors, or lines as a choice or recombination of thinking, and then show new aspects for design added value. As far as traditional paper-cut art is concerned, it is the appearance form of paper-cut: shape. The mid- or behavioral level is the transit of use behavior and ritual customs, which is an indirect mid-level application of user behavior that includes functionality, operability, ease of use, safety, structural relationships, and other attributes. Designers achieve the purpose of transiting the product by analyzing or re-deconstructing its function. In terms of the structure of traditional paper-cut art, it is the hollowed-out feature of the pattern presented by the connected lines, which is the most important feature of paper-cut art. The inner or psychological level (intangible level) is the transformation of ideology and intangible spirit, which implies the application of inner psychology and includes products with presences of special ideologies, stories, feelings, and cultural characteristics. It focuses on the special implications, stories, or cultural qualities in combination with the old and the new. As far as paper-cut art is concerned, the imagery in the pattern combination gives the viewer the inner auspicious psychological feeling: color.

Although relevant scholars have differed in the name and content of the three levels of culture according to the above research, their definitions of the transfer attributes of cultural products are similar. Hsu (2004) and Hsu and Lin (2011) discussed the integration of the three levels of cultural space. Their arguments, corresponding to the traditional paper-cut transfer cultural product design on the three attributes, are shown in **Table 1** and **Figure 2**.

3. Research Method

3.1. Research Process

This study explored the research on the innovative imagery of products given by traditional paper-cut art. From the perspective of contemporary design trends

and themes, traditional paper-cutting art can be explored through contemporary design techniques, further pushing traditional art towards internationalization. Alessi's design products incorporate the vocabulary of paper-cutting art while maintaining contemporary design forms, making it a worthy subject of research in transforming traditional paper-cutting art into contemporary design products. By using products from the official website of Alessi as samples, the subjects' preferences for personal imagery in these products was explored.

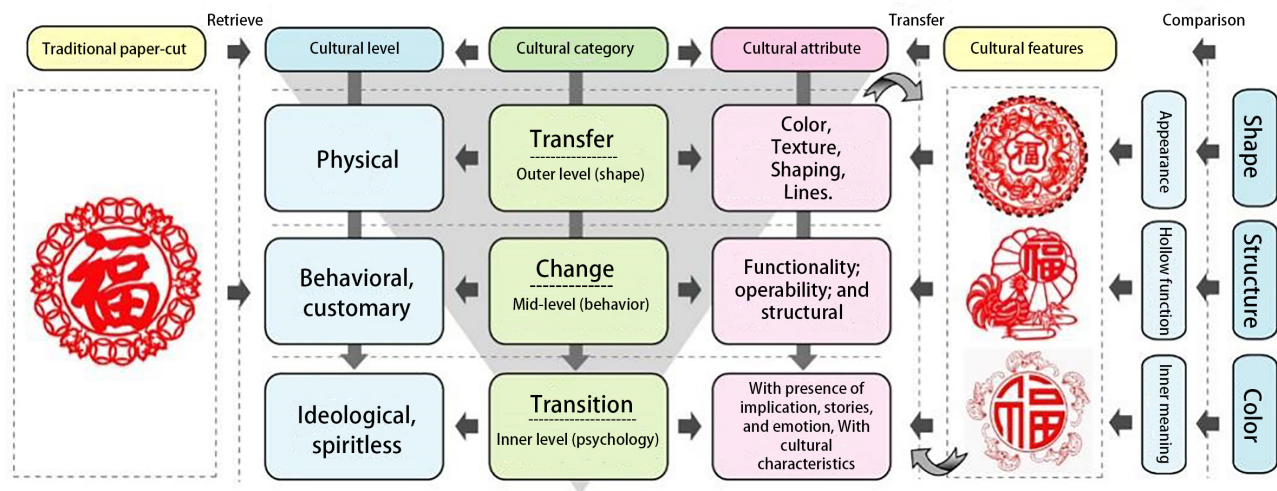


Figure 2. Relation graph of three attributes of cultural product space corresponding to the traditional paper-cut transfer (Source: Hsu & Lin, 2011; Hsu, 2004).

Table 1. Correlation of cultural level corresponding to traditional paper-cut features.

Scholar	Arguments on the three attributes of cultural transfer products			Traditional paper-cut corresponding features
	Cultural level	Cultural category	Cultural attribute	
Norman (2004)	1. Visceral level	1. Appearance	1. Product appearance; touch; feeling	Shape
	2. Behavioral level	2. Users' fun; utility	2. Use function; performance; ease of use	Structure
	3. Reflective level	3. Self-image; personal satisfaction; memory	3. Intrinsic feeling; emotion; cognition	Color
Leong & Clark (2003)	1. Outer level	1. Tangible	1. Feeling of product appearance	Shape
	2. Mid-level	2. Material	2. Application of product function	Structure
	3. Inner level	3. Intrinsic	3. Psychology of product use	Color
Hsu (2004) Hsu & Lin (2011)	1. Outer level (shape)	1. Physical	1. Color; texture; shaping; and lines	Shape
	2. Mid-level (behavior)	2. Behavioral; customary	2. Functionality; operability; and structural	Structure
	3. Inner level (psychology)	3. Ideological; spiritless	3. With presences of implication, stories, and emotion. With cultural characteristics	Color

(Source: Compiled by this study).

As a traditional paper-cut art, how to capture the merits of modern Western products in combination with their own cultural advantages in order to enhance the added value of products, making it meet the requirements of modern society and design. Furthermore, it put forward relevant suggestions as a reference for the follow-up research. The research process was divided into four stages. The first stage was a literature discussion, which formed the basis for the construction of evaluation attributes by summarizing and sorting out relevant literature. The second stage was the establishment of the research framework establishment, in which conjoint analysis was first applied to construct the evaluation indexes of paper-cut imagery and then regression analysis was used to investigate the factors related to product preferences. The third stage was the questionnaire design and measurement and was divided into two steps. The questionnaire design was explained in step 1, while the questionnaire measurement was conducted in step 2. The fourth stage contained the research results and discussion and was also divided into two steps. Step 1 was the judgment value of Alessi's product imagery, which was used to analyze and verify the questionnaire. Step 2 put forward conclusions and suggestions, as shown in **Figure 3**.

3.2. Research Structure

The framework of this confirmatory research was developed through theories presented in the relevant literature. The structure was divided into two parts. Structure 1 was the conjoint analysis, in which this paper discussed how the subjects evaluated the value judgment of the imagery in Alessi's product features from the perspective of modern society based on the construction of three evaluation attributes (color, structure, and shape) in the paper-cut imagery. Structure 2 was the regression analysis, in which the correlation factors of the outer, mid-level, and inner cultural spatial attributes of the product preferences were investigated.

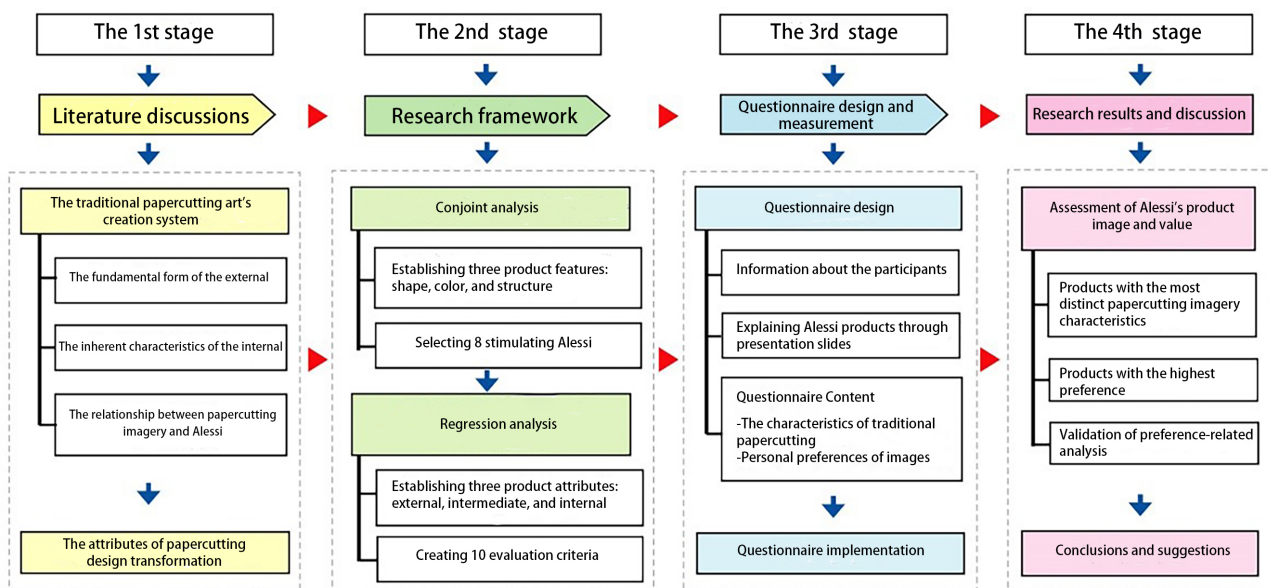


Figure 3. Study flow chart.

3.2.1. Conjoint Analysis of the Construction of Paper-Cut Imagery

Regarding the establishment of the conjoint analysis framework (Figure 4), a focus group composed of five experts was invited to discuss and determine seven essential attributes of Alessi's products (Table 2) according to the three essential attributes. Then, conducted the orthogonal in the conjoint analysis in order to generate the Card ID ranking. After obtaining eight cross-evaluation categories (Table 3), 5 experts were commissioned to screen out eight product stimulants from 65 Alessi product samples (Table 4) in order to measure the value judgment of the product features.

3.2.2. Regression Analysis: Discussion of Factors Related to Product Preference

The establishment of the regression analysis architecture was aimed at investigating product performance preferences. Three cultural attributes, nine evaluation indexes, and one overall product imagery value judgment were established respectively based on the theoretical basis discussed in the literature, and according to the outer, mid-, and inner levels of cultural spatial transfer products proposed by Norman, Leong and Clark, Hsu and Lin as the evaluation attributes (Table 1). They composed into 10 evaluation index items in this study, and related factors of the product performance preferences were discussed.

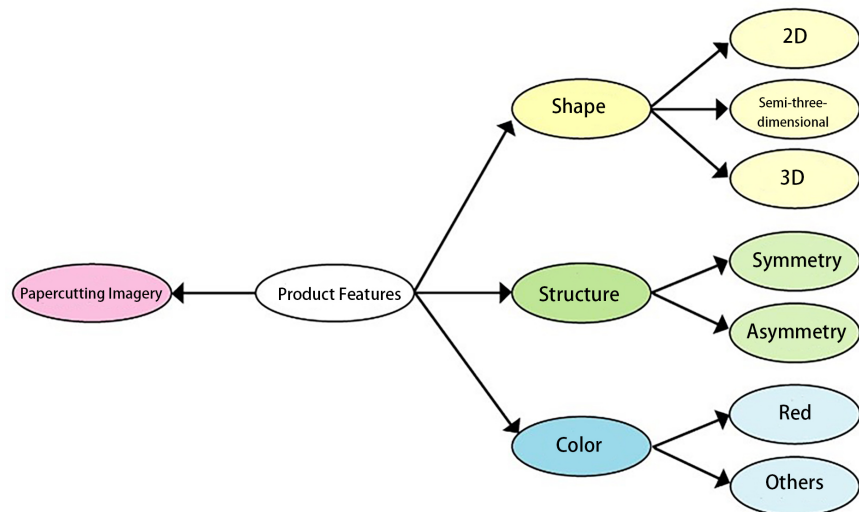


Figure 4. Structure diagram of conjoint analysis.









Table 2. Essential attributes of Alessi products.

Attribute	Level
Shape	Plane
	Three-dimensional
	Quasi-stereoscopic
Structure	Symmetry
	Asymmetry
Color	Red
	Others

Table 3. Evaluation categories of the orthogonal list.

Card List			
Card ID	Shape	Structure	Color
1	Plane	Asymmetry	Others
2	Three-dimensional	Symmetry	Others
3	Three-dimensional	Asymmetry	Red
4	Symmetry	Symmetry	Red
5	Quasi-stereoscopic	Symmetry	Red
6	Quasi-stereoscopic	Asymmetry	Others
7	Plane	Asymmetry	Red
8	Plane	Symmetry	Others

Table 4. The eight Alessi product stimulants.

No.	01	02	03	04
Product				
Name	Barksled Christmas ornament	Round basket	Fruit holder	Christmas ornament
Designer	Boucquillon & Maaoui	Boucquillon & Maaoui	Emma Silvestris	Boucquillon & Maaoui
Conception	Derived from natural bark	Derived from natural bark and nest	Derived from the ocean	Derived from natural bark
Color	Silver (others)	Silver (others)	Red	Red
Function	Christmas ornament	Article holder	Fruit dish	Christmas ornament
Material	10/18 polished stainless steel	10/18 polished stainless steel	Stainless steel and red epoxy resin	430 Stainless steel and red epoxy resin
Size	15 cm long × 6.7 cm wide × 9 cm high	21 cm diameter × 7 cm high	21 cm diameter × 9 cm high	25 cm long × 9 cm wide × 30 cm high
No.	05	06	07	08
Product				
Name	Shhh leaf fragrance diffuser	Cactus paper napkin holder	Centrepiece	Glass coaster
Designer	Marcel Wanders	Marta Sansoni	Guido Venturini	King-Kong
Conception	Derived from the traditional reed	Derived from the cactus	Derived from fabric lace	Derived from person
Color	Red	Silver (others)	Red	Silver (others)
Function	Perfume device	Napkin holder	Fruit dish	Coaster
Material	Porcelain and mahogany	10/18 polished stainless steel	10/18 polished stainless steel	Glass and 10/18 stainless steel
Size	11.5 cm diameter × 25.5 cm high	12 cm long × 3 cm wide × 8.5 cm high	60 cm long × 34 cm wide × 7.5 cm high	13 cm diameter

3.3. Research Procedure and Measurement

The Alessi product paper-cut imagery preference survey was divided into four stages, as described below.

1) Stage 1: Literature analysis

At the beginning, the literature was summarized and sorted out to establish the basis of the evaluation attributes. The relevant literature discussion was divided into two parts. The first part was the generation system of traditional paper-cut art, which was used to integrate the correlation between paper-cut art and Alessi's products. The second part was the attributes of the paper-cut design conversion, connecting the product context and causality, and drawing up the Alessi product imagery evaluation indexes and the content of measurement.

2) Stage 2: Establishment of the research framework

a) **Conjoint analysis** was used to construct the paper-cut imagery. First, samples of Alessi's products were selected from the official company website as objects. Five experts with relevant design backgrounds were invited to discuss the 65 samples through a focus group and establish the three basic product features (shape, structure, and color) in the cultural level transfer products. Following this attribute, the orthogonal list from the conjoint analysis was sorted by SPSS software (Table 3). Then, the eight ranked results were obtained according to the three attributes of card ID ranking (Table 4). Eight stimulants of Alessi products with paper-cut characteristics were screened out and used as the basis for the subject's imagery value judgment of the questionnaire content.

b) **Regression analysis** was used to explore the factors of product performance of preferences and discuss the factors related to the subjects' preferences for the three attributes, nine evaluation indexes, and comprehensive imagery value judgment derived from the outer level, mid-level, and inner level of product cultural space (Table 5).

3) Stage 3: Questionnaire design and measurement

a) **Questionnaire design stage:** The content was divided into four parts. The first part was the basic information of the subjects, including their gender, age, education, and background. The second part was the product stimulant description, which described the basic data of the eight irritants of Alessi's products. The third part was the individual evaluation of the product attributes. Each product in the combination of questions included the followings: The outer level included three evaluation indexes for the characteristics of the paper-cut art, the shape, and whether the product was creative. The mid-level included three evaluation indexes for the practical convenience, ingenuity, and practical functionality of the product. The inner level included three evaluation indexes for the implied meaning, lifestyle, feeling pleasure and preference degree of the works, plus one comprehensive imagery value judgment, with a total of 10 evaluation indexes (Table 5). The fourth part was the comprehensive imagery value judgment, in which the subjects selected the product ranking with the most paper-cut imagery characteristics and identified their favorite works from the eight products according to their subjective feelings.

Table 5. The ten evaluation questions (the same question for each stimulant).

Attribute	Evaluation question	Strength of imagery	
		Disagree	Strongly agree
		1----	2-----3----4----5
Outer level	a1. Do you think this work has the characteristics of paper-cut?	<input type="checkbox"/>	<input type="checkbox"/>
	a2. Do you think this work has a perfect shape as a whole?	<input type="checkbox"/>	<input type="checkbox"/>
	a3. Do you think the appearance of this work is creative?	<input type="checkbox"/>	<input type="checkbox"/>
Mid-level	a4. Do you think this work has practical convenience?	<input type="checkbox"/>	<input type="checkbox"/>
	a5. Do you think the material shaping of this work is ingenious?	<input type="checkbox"/>	<input type="checkbox"/>
	a6. Do you think this work has practical functionality?	<input type="checkbox"/>	<input type="checkbox"/>
Inner level	a7. Do you think this work has a profound implied meaning?	<input type="checkbox"/>	<input type="checkbox"/>
	a8. Do you think this work can evoke lifestyle?	<input type="checkbox"/>	<input type="checkbox"/>
	a9. Do you think this work is enjoyable to the viewer?	<input type="checkbox"/>	<input type="checkbox"/>
Evaluation of product imagery10. How much do you like this work?		<input type="checkbox"/>	<input type="checkbox"/>

b) **Questionnaire measurement stage:** Formal questionnaire measurement was executed by two steps. In step 1, before completing the formal questionnaire, the subjects watched a 10-minute PowerPoint presentation that described the eight product stimulants, so that they could understand the measurement process and understand the products. In step 2, the subjects completed the formal questionnaire. Part one of the questionnaire investigated the imagery of the product attributes. The subjects were asked to evaluate their actual feelings and experience of the products using a five-point Likert scale (with scores ranging from one point for weakly to five points for strongly) for each of the 10 evaluation indexes in the three groups of attributes. Part two of the questionnaire investigated the subjects' personal preferences for imagery. The subjects checked the two questions of the product ranking with the most paper-cut imagery characteristics and their favorite works from the samples according to their personal preferences. The questionnaire was completed at this point.

3.4. Subject Survey

A total of 52 questionnaires were collected, of which 50 were valid samples (96%). In terms of gender, there were 20 males (40%) and 30 females (60%). In terms of age, 19 people were under 20 years old (38%), 14 people were 21 - 30 years old (28%), eight people were 31 - 40 years old (16%), and 9 people were 41 years old or above (18%). In terms of education, 31 people had a bachelor's degree (62%), eight people had a master's degree (16%), and 11 people held a doctoral degree (22%). In terms of professional background, 28 people had design-related majors (56%), 17 people had art-related majors (34%), and five people had other majors (10%).

4. Research Results and Discussion

4.1. Relative Utility Value and Importance Weight of Each Product Attribute

The subjects' imagery preferences for the eight Alessi products were evaluated

using SPSS statistical analysis. The results showed the importance weights and utility values of the products, as presented in **Table 6**. It was found that Pearson's R was .969 ($P < .01$), while Kendall's Tau was .786 ($P < .001$), indicating that the results of the conjoint analysis had predictive validity (Green & Srinivasan, 1978).

The research results showed that the most important attributes among the subjects' imagery preferences for the three attributes of Alessi's products were shape (55.5%), followed by color (23.7%) and then structure (20.8%), as shown in **Figure 5**. According to the perspective of the relative preference utility value, the quasi-stereoscopic in product shape ($r = 8.00$) was the most preferred morphology of the subjects, as shown in **Figure 6**. The second-most preferred morphology was asymmetry ($r = .270$) in the structure, as shown in **Figure 7**. In the end, red ($r = .220$) was the preferred color of the subjects, as shown in **Figure 8**.

4.2. Analysis of the Subjects' Preferences for Alessi's Products

4.2.1. Preference Ranking with the Most Paper-Cut Imagery Characteristics

In the second part of the questionnaire, a statistical analysis was conducted on the evaluation data of the subjects' preferences for the most paper-cut imagery among the eight Alessi product stimulants. According to the verification results (**Table 7**), the ranking was: 1 (product p6) > 2 (product p3) > 3 (product p5) > 4 (product p2) > 5 (product p4) > 6 (product p7) > 7 (product p1) > 8 (product p8). Moreover, the data of the first three products showed that ranking 1 was the product p6, indicating it was the most preferred product and had the most paper-cut imagery characteristics: silver stainless steel Paper napkin holder Cactus, with a sequence average of 3.00. The ranking 2 was the product p3: red stainless steel Fruit holder, with a sequence average of 3.28. The ranking 3 was the product p5: red wooden and ceramic Leaf fragrance diffuser Shhh, with a sequence average of 3.76. While the ranking 8 was the product p8 having the weakest preference with paper-cut imagery characteristics: silver glass and stainless steel Glass coaster, with a sequence average of 6.18. According to the above results, the product with the most paper-cut imagery characteristics was p6. Its quasi-stereoscopic morphology had a visual effect similar to paper, and the complete sense of visual penetration and modern sense under the obvious characteristics of traditional hollowed-out paper-cut made this product stood out.

4.2.2. Product Preference Ranking

In the second part of the questionnaire, a statistical analysis was conducted on the evaluation data of the subjects' product preferences among the eight product stimulants of personal preference imagery. The overall results of the average verification (**Table 8**) were as follows: p5 > p3 > p2 > p6 > p7 > p8 > p1 > p4. The average data of the first three preferences showed that the strongest preference was p5: red wooden and ceramic Leaf fragrance diffuser Shhh, with an average of 3.76. The ranking 2 was p3: red stainless steel Fruit holder, with an average of 3.28. The ranking 3 was p2: silver stainless steel Round basket, with an average of

3.70. While the last ranking with the lowest preference was p4: red stainless steel Christmas ornament, with an average of 3.00. In addition to the hollowed-out feature of paper-cut in the product, the perfume inside the bottle exuded fragrance. It was also a composite material, having the imagery of red product of traditional paper-cut. This gave the product more function and feeling, providing an absolute advantage that the other seven products did not have.

Table 6. Importance weights and utility values of the attributes.

Attribute	Level	Utility value	Importance weight %
Shape	Plane	-1.280	55.454
	Quasi-stereoscopic	.800	
	Three-dimensional	.480	
Structure	Symmetry	-.270	20.816
	Asymmetry	.270	
Color	red	.220	23.731
	others	-.220	
Pearson's R: .969***		Kendall's tau: .786**	

** $P < .01$; *** $P < .001$.

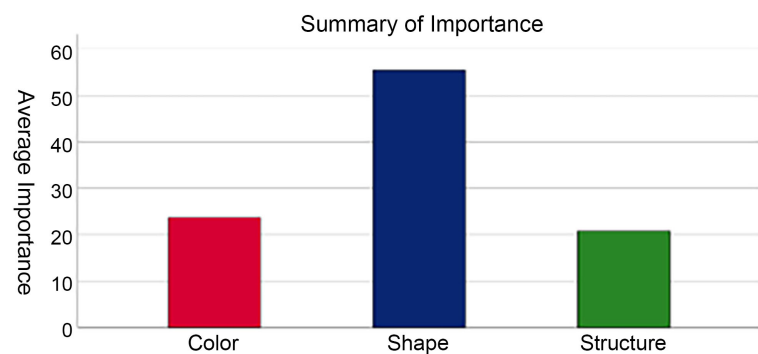


Figure 5. Average importance weight of product.

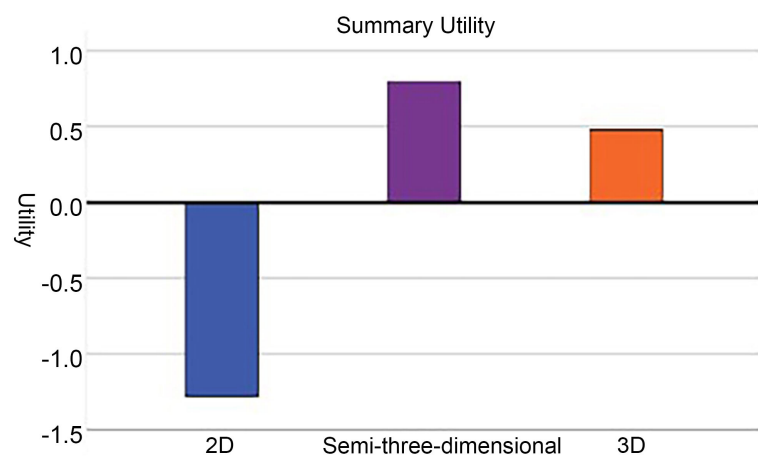


Figure 6. Shape relative preference utility value.

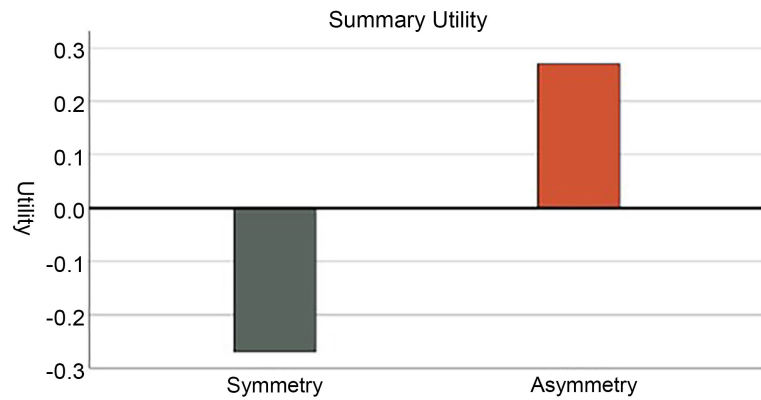


Figure 7. Structure relative preference utility value.

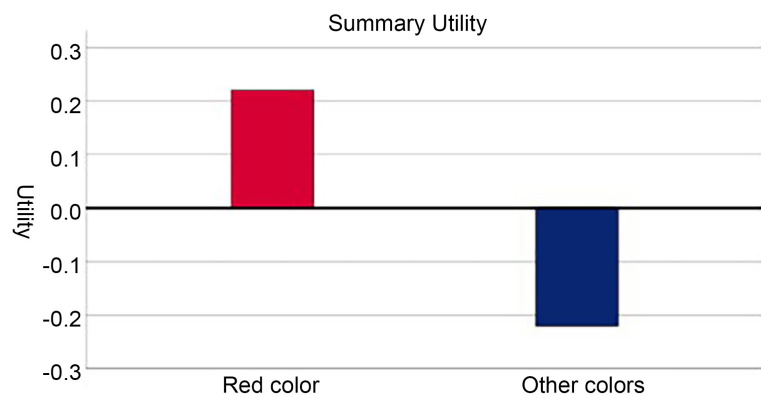


Figure 8. Color relative preference utility value.

Table 7. Preference ranking of the paper-cut imagery characteristics.

Ranking	1	2	3	4	5	6	7	8
Product	p6	p3	p5	p2	p4	p7	p1	p8
Sequence average	3.00	3.28	3.76	4.12	5.02	5.06	5.58	6.18

Table 8. Product preference ranking.

	1	2	3	4	5	6	7	8
Average	p5	p3	p2	p6	p7	p8	p1	p4
Average	3.88	3.74	3.70	3.60	3.26	3.18	3.00	3.00




4.2.3. Multiple Regression Analysis of Product Preference

Multiple regression statistics were used to explore the key factors of the subjects in judging the imagery values of product stimulants p5, p3, and p2, which had the highest average product preference values. The outer level, mid-level, and

inner level factors were distinguished as indexes of the subjects' preference strengths, as shown in **Table 9**.

According to the multiple regression analysis of the predicted variable in product 5, the correlation coefficient R between the overall predicted variable and the dependent variable was .737. Furthermore, the overall explanatory power R^2 of the three predicted variables for preference was .543. The F value was 18.195, reaching the significance level of .000. The results showed that the three attributes of the predicted variables were significantly correlated with the preference degree for this product. The β values of the outer level and inner level reached a significant level. The correlation coefficient R between the overall predicted variable and the dependent variable was .842 when the predicted variable was analyzed by multiple regression analysis in the product p3. The explanatory power R^2 of the three predicted variables for preference was .710 and the F value was 37.464, reaching the significance level of .000. The results showed that the three attributes of the predicted variables were significantly correlated with the preference degree for this product. The β values of the mid-level and inner level reached a significant level. The correlation coefficient R between the overall predicted variable and the dependent variable was .818 according to the multiple regression analysis of the predicted variable on the product p2. The overall explanatory power R^2 of the three predicted variables for preference was .670 and the F value was 31.106, reaching the significance level of .000. The results showed that the three attributes of the predicted variables were significantly correlated with the preference degree for this product. The β values of the mid-level and inner level reached a significant level. There were significant correlations between the three attributes of product p5, p3, and p2 on the predicted variables and the preference degree for this product from an overall result.

Table 9. Multiple regression analysis of predicting subjects' preferences for products at three levels of product attributes.

Product	Dependent variable	Predicted variable	B	r	β	t
P5 	Preference	Outer level	.357	.665	.351	2.462*
		Mid-level	.070	.483	.065	.485
		Inner level	.428	.694	.400	2.319*
		$R = .737$		$R^2 = .543$		$F = 18.195^{***}$
P3 	Preference	Outer level	-.020	.605	-.020	-161
		Mid-level	.171	.699	.171	1.238*
		Inner level	.727	.836	.721	5.721***
		$R = .842$		$R^2 = .710$		$F = 37.464^{***}$
P2 	Preference	Outer level	.95	.630	.070	.564
		Mid-level	.443	.750	.398	3.150**
		Inner level	.518	.763	.428	3.147**
		$R = .818$		$R^2 = .670$		$F = 31.106^{***}$

* $P < .05$; ** $P < .01$; *** $P < .001$.

5. Conclusion and Suggestions

This study used eight Alessi products as stimulants to explore the subjects' views on the product imagery and preferences. Relevant conclusions and suggestions are presented below.

5.1. Research Results of Alessi Product Preferences

1) In terms of preferences of product attributes: a) The most important attribute was shape (55.5%), followed by color (23.7%) and structure (20.8%) among the imagery preferences of the three attributes of the Alessi products. b) From the perspective of the relative preference utility value, the favorite of the subjects was the quasi-stereoscopic ($r = 8.00$) of the shape of the product, followed by asymmetry in the structure ($r = .270$) and the color red ($r = .220$), which was preferred over other colors (**Table 7**). The research results showed that among the three product attributes, shape was the most critical element of the product design. In the past, paper-cut was limited by the characteristics of paper, and traditional works could only be displayed in a flat and symmetrical form. However, with the progress of science and technology and the change of lifestyles, works are no longer confined to the plane but are often presented in the form of quasi-stereoscopic or three-dimensional displays. Asymmetric structural forms and product features with red imagery should be the focus of thinking in future product design.

2) In the preference with the most paper-cut imagery characteristics: The traditional paper-cut hollowed-out characteristic is a unique feature of paper-cut art. According to the results of the sequence average in **Table 7**, the ranking of the strongest paper-cut imagery characteristic among the 8 product stimulants was as follows: 1 (product p6) > 2 (product p3) > 3 (product p5) > 4 (product p2) > 5 (product p4) > 6 (product p7) > 7 (product p1) > 8 (product p8). Top of the ranking was the product p6 (Paper napkin holder Cactus). The product's quasi-stereoscopic morphology had a visual level similar to paper. Under the application of paper-cut hollowed-out features, the stainless steel material shaped as leaves could break through the silver visual penetration of the red imagery of paper cuts in the past, giving the product a greater avant-garde sense and fashion sense. The second ranking was the product p3 (Fruit holder). This product has taken nature as the idea, just like the natural extension of seaweed shape and presents a three-dimensional rhythm, showing the dynamic and level that paper-cut is difficult to achieve. It subverted the imagination of traditional paper applications through the shaping of modern stainless steel. The imagery presented by the red color cleverly integrated natural issues, transforming the product into a modern and innovative work in combination with tradition and environmental awareness. The third ranking was the product p5 (Leaf fragrance diffuser Shhh). With trees as the theme, the upper part was in the shape of leaves, showing the sense of visual penetration of hollowed-out. The lower part was a pot made of ceramic in combination with a composite material, showing a

special unique charm. While the last eighth was the product p8 (Glass coaster) with the weakest imagery characteristics. Its traditional shape, with the appearance of a traditional circular paper-cut form, made it not characteristic and it was not favored by most subjects.

3) In terms of product preference ranking: Among the eight product stimulants according to the average value results in **Table 8**, the ranking of the strongest product preference was as follows: 1 (product p5) > 2 (product p3) > 3 (product p2) > 4 (product p6) > 5 (product p7) > 6 (product p8) > 7 (product p1) > 8 (product p4). The first ranking was the product p5, as indicated in (2) above with descriptions in ranking 3. In addition, this product was combined with wooden and ceramic composite materials and the tank was filled with aromatic liquid, which made it not only decorative but also gave emotional stretch. Moreover, it had the red imagery and hollowed-out features of traditional paper-cut, giving this product more function and value. This was an advantage that the other seven product stimulants did not have, thus making it the most popular product. The second ranking was the product p3, as described in (2) above. The third ranking was the product p2. This product used bark and bird nests from nature as the inspiration, through the irregular shape of stainless steel bark, interweaving the unique characteristics like paper-cut hollowed-out. The three-dimensional bird-nest shape, as the combination of nature and organisms, transformed it into a unique fashion product. The eighth ranking was the weakest preference of the product p4. This product took a Christmas tree as the theme, as shown through the bark interwoven with red and flat stainless steel decorations. In the faint hollowed-out features, the function was limited to a specific holiday, making the product too simple and the weakest preference product.

5.2. Mastering the Combination of Paper-Cut Imagery to Enhance the Added Value of Products

The generation system of traditional paper-cut art has been deeply influenced by Chinese cultural thoughts. It has all shown the connotation and philosophy of traditional culture through its performance theme, form, and result. In fact, they all have a certain connotative meaning that forms a collective law. The basic characteristics of this interchange had the image in the external result in form as well as the meaning in the internal cultural connotation. This was the core significance of the work, and also the focus of the subsequent design conversion of the product. According to the three transfer attributes of cultural space, on the outer level, the emphasis was on a consummation and complete circular appearance as expression; at the behavioral level, the main feature was the outline of hollowed-out to show the sense of penetration of plane vision. This characteristic has become the most important feature of paper-cut art. At the inner level, the content took the cultural connotation as the element, which then conveyed the auspicious aesthetic consciousness. After measuring the imagery preferences of Alessi's products, the paper-cut art styles and forms combined by imagery

could be applied to subsequent product design and the enhancement of added value.

5.3. Capturing the Advantages of Western Products to Make the Subsequent Studies Be More Perfect

Products need to be innovative, so that the culture can continue. Based on this, the present study put forward three suggestions for follow-up studies. First, this study initially took Alessi's products as an example of empirical study on imagery preferences. The advantages of these products were captured with integration of the generation system of paper-cut imagery in order to discuss the subjects' views on Alessi's product imagery and preferences, which could provide innovative design directions and applications for subsequent product research. Second, a complete record of the results of the execution of a study has been a microcosm of the precious property of mankind. In the realization of the research results and substantial contribution of the research objectives design, if the subsequent researchers can convert the results of this study into various aspects of demand applications of the design to innovate the paper-cut art form, improve product design, and place the design application in line with the trend of modern life. Third, at the beginning of this study, school groups were selected as the scope of the market research, and the subjects were limited to people with a Chinese background who were able to understand the connotations of traditional culture. The research results will be more meaningful if future follow-up studies expand the categories of ethnic groups and related products, so as to conduct more in-depth discussion and analysis.

The future of design is the integration of art, culture, and science to address societal issues and reshape human lifestyles. Especially in the 21st century's digital and technology-driven world, design that centers on "humanity" and is grounded in "culture" is of paramount importance. This is where cultural creative design comes into play, with a strong emphasis on value enhancement. It must transform through culture into creativity and then lead to value-added product design.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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