

Minimalist design: explore the key factors that influence the packaging design of muji products on consumers' purchasing attitudes

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ABSTRACT

With the continuous development of social economy and science and technology, the concept of minimalist design is constantly updated and changed. When every new product is developed, in order to bring impact to consumers, the important mission of minimalist design is how to convey product information, so that it is more acceptable to consumers. Muji's design, in a basic sense, is an act of designers following the development of sustainable design. When consumers choose to buy minimalist products, designers need to consider consumer behavior and psychology. On the basis of literature review, based on fuzzy design theory and data analysis theory, this paper summarizes the factors that affect consumers' purchase intention through questionnaire survey, and conducts in-depth analysis on the influencing factors such as packaging color, packaging materials, font style and printing information.

KEYWORDS

Minimalism; packaging color; Packaging materials; Font style; Printing information; Consumer purchase intention

1 Introduction

Emotional design based on consumer psychology has become one of the development trends of modern design, and there are also many practical problems in the development of modern design. The emergence of these problems has exposed that modern design should not only be satisfied with functional use and people's intuitive visual experience, but should also convey a certain emotional expression and design experience to consumers through a people-oriented design concept (Liu, 2022). MUJI is a globally renowned department store brand. At its inception, it placed great emphasis on various products, packaging, visual and other designs related to brand development, especially in terms of user experience and emotional product design, which has won widespread consumer praise and love (Westin, 2023).

While MUJI represents a unique facet of the design world, the broader global design landscape is also experiencing a noticeable shift. A pivot towards minimalist, user centered designs is evident, inspired in part by rising sustainability concerns and evolving consumer.

This paper studies the key factors that influence consumers' purchasing attitude in minimalist packaging design with the example of MUJI. From the perspective of consumers, the results provide minimalist product packaging designers, give designers more advice, and give consumers a better consumption experience.

1.1 Research background

1.1.1 Historical background of minimalism

The term 'minimalism' refers to everything that has been reduced to the bare minimum. Minimalism and its comprehension of the elimination of various components generate an outlook that allows simplicity to shine in its varied facets. It refers to employing less elements to get the intended result and has evolved to be one of the most widely adopted design trend to appear in recent years. The majority of 21st century design approaches rely on minimalism. In this digital age, the machines were developed to speed up and simplify work, but it has instead added multiple layers of complexity to our lives. With this complicated world people's lives have become increasingly more hectic especially those who live in urban areas where there is a higher pressure from various forms of competition. As a result, more people are becoming interested in minimalism and admire it.

The movement known as minimalism, which first appeared in the 1960s, has had a significant influence on both art and design (Margariti et al, 2017). Geometric shapes, simplicity, and the use of modern materials are all hallmarks of minimalism. The movement opposed conventional artistic styles and aimed to produce works that were reduced to their most fundamental components. Architectural design, sculpture, and painting have all been impacted by minimalism. The design world has also been inspired by minimalism, particularly in the fields of graphic, interior, interaction, and product design (Sani & Shokooh, 2016).

The modernist movement of the mid-20th century, which looked to reject the elaborate and beautiful designs of the past in favor of a more practical and effective approach to design, is sometimes linked to minimalism (Tungate, 2019). On the other hand, minimalism has continued to develop and have an impact on modern design techniques in a variety of mediums, from print to digital. The use of minimalism in graphic design can result in simple, uncluttered layouts that put emphasis on readability and usability. Minimalism can enhance the effectiveness of connecting with audiences by helping to bring attention to important messages or items by removing superfluous features. A limited color palette, an emphasis on typography, the use of straightforward geometric shapes, and careful consideration of negative space are some essential components of minimalism in graphic design. Overall, minimalism is a strong tool for designers who wish to produce works that are both aesthetically pleasing and incredibly useful.

1.1.2 The origin of Muji

MUJI's inception can be traced back to the late 1970s, born out of the Seiyu supermarket chain's initiative in Japan. In a world teetering on the precipice of rampant consumerism, MUJI was a beacon of restraint, offering products devoid of the clutter of brands (Kikuchi, 2004). However, it wasn't just a business model. It was a cultural response, an antidote to the excesses of a society increasingly defined by brand consciousness.

Deeply embedded in Japanese cultural notions, MUJI's philosophy mirrors the Zen Buddhism concepts of simplicity and the essential nature of things. The brand draws from Japan's rich history, where minimalism isn't just an aesthetic choice but a way of life, deeply rooted in the traditions of "Ma" (space) and "Wabi-sabi" (the beauty of imperfection) (Foscht, Sinha, Maloles, & Schloffer, 2011).

1.2 Research significance

Improve the depth and breadth of design theory. Through in-depth study of the effects of minimalist design in practical applications, existing design theories can be enriched and refined, especially in the field of packaging design. Minimalist design is not only limited to visual art, but also

involves multiple dimensions such as consumer psychology and cultural values. Therefore, this research can promote the integration and development of interdisciplinary theories.

Understanding Consumer behavior. Research can reveal consumers' preference for minimalist design and how that preference affects their purchasing decisions. Consumers in different cultural backgrounds may have different acceptance of minimalist design, and this study will help to understand this difference and provide strategic support for enterprises' global market layout.

Promote enterprise brand building. Muji's minimalist design is a core part of its brand identity. Delving into how this design affects consumer perception can provide insights to other businesses on how to build and maintain brand image through packaging design. In a market environment where many brands compete fiercely, minimalist design can be used as an effective differentiation strategy to attract specific consumer groups.

Optimize product packaging design. Minimalist design often means lower production costs, and research can help companies understand how to effectively control costs while maintaining design appeal. Minimalist packaging design is also closely related to environmental protection, and research helps promote enterprises to adopt more environmentally friendly packaging design to meet the green consumption needs of more and more consumers.

Overall, this study can provide practical guidance for designers, marketers, brand managers and other professionals to help companies stand out in the fierce market competition. At the same time, it also promotes the academic circle to further explore the relationship between design, consumer psychology and marketing, which has important academic value.

1.3 Research theory

Specific performance in the following aspects: First, uncertainty, the so-called uncertainty, refers to the unstable characteristics of things. Due to the constant change of time and space, there are a lot of uncertain intermediate links, which transition to each other, showing a unique fuzzy state. Therefore, certainty is temporary and relative, while uncertainty is permanent and absolute. The second is wholeness, which focuses on grasping the whole of things rather than the parts. In the process of blending and penetrating, each part constantly makes its outline and impression disappear in the connection with each other. And in this interrelation, reassemble the outline and impression into a unified whole (Shenid Bhayroo, 2014). It is general and hazy, thus showing a kind of fuzzy aesthetic feeling; And then the interpermeability, another characteristic of ambiguity, is the interpermeability, or the permeability and the transition of the medium.

Minimalism emphasizes the creation of design works with the least elements, colors, shapes and textures, with the aim of removing superfluous decoration and allowing design works to present the most essential form and meaning. In minimalism, every element that has been preserved has been carefully selected and considered, aiming to convey the purpose and content of the design in a concise and clear way. Fuzzy design theory is a design method that inspires users to think and explore with the help of uncertainty and ambiguity of design. It encourages designers to create open designs that allow users to find personal understanding and meaning in their interactions with the design. Fuzzy design promotes the dialogue between users and design by leaving space for interpretation, and enhances the sense of participation and experience of design.

Determine research objectives based on research questions: Explore the key factors that influence consumers' purchasing attitudes in Muji packaging design. According to the research purpose and related literature review, the most important influencing factors are: packaging color, packaging material, font style, packaging design, printing information; The factors that need to be further confirmed are: packaging color, packaging materials, font style, packaging design, printing information, and consumer purchase intention.

1.4 Statement of the Problem

One of the biggest complaints of minimalist design is that it can be lacking in excitement or appeal on the surface. Minimalist designs could be too straightforward or monotonous for some customers, which could lower interest in the company or its goods and decrease brand engagement (Sugandha, 2023). Minimalist design frequently makes use of a small number of design components, including a restricted color palette, straightforward typography, and negative space. This could make it more difficult for the designer to come up with intricate or sophisticated designs (Sugandha, 2023). Minimalist design has the potential to simplify or remove critical components that are essential for engaging users or communicating effectively in particular situations. This may lead to a design that is overly simple or basic and may not appeal to users (Gumber, 2023).

The goal of this paper is mainly to identify the key factors of the purchase attitude of minimalist products on the basis of Muji products. This research can help designers solve the problems mentioned above. This study can explore how to increase the appeal and sensory experience of the design through detail treatment, material selection, color application and other ways while maintaining the spirit of minimalism. By analyzing consumer feedback on minimalist design, research can reveal which elements or approaches are effective in enhancing the innovation of a design while maintaining its simplicity. Secondly, this study can help to understand how to balance aesthetics and functionality in the process of simplifying design, ensuring that products not only conform to the appearance of minimalism, but also meet the actual needs of users. At the same time, by studying the attitudes and preferences of different consumer groups towards minimalist design, brands can better position their products to meet the needs of the target market. Finally, studying how to promote more sustainable consumption habits through minimalist design, including reducing waste and promoting recycling, can help brands establish a responsible social image.

Through this multi-angle analysis, the research will not only help solve specific problems in design practice, but also build a deeper understanding and connection between consumers, designers and brands, and promote continuous optimization and innovation in product design and marketing strategies.

1.5 Research object

1.5.1 Identify and describe specific expressions of minimalism in Muji packaging design, including color use, graphic design, font selection, etc.

1.5.2 Analyze consumers' perception of Muji minimalist packaging design, including aesthetic evaluation, emotional connection and influence on brand perception.

1.5.3 Identify the key factors that influence consumers' purchasing attitudes, such as packaging color, packaging materials, font design, print design, and how these factors influence consumers' purchasing decisions.

1.5.4 Explore the impact of minimalist packaging design on Muji's brand image, including consumers' overall impression, trust and loyalty to the brand.

1.6 Research questions

1.6.1 How is minimalist design achieved in Muji packaging?

1.6.2 How do consumers perceive Muji's minimalist packaging design?

1.6.3 What factors influence consumers' purchasing attitude towards Muji's minimalist packaging design?

1.6.4 How does minimalist packaging design affect Muji's brand image?

1.7 Limitations of the study

This paper mainly relies on quantitative research, such as questionnaire survey, which may ignore the deep-seated consumer feelings and motivations, and may fail to fully capture and explain the complex factors that affect consumers' purchasing attitudes.

In addition, research is conducted at specific points in time, and consumer attitudes, preferences, and market trends may change over time. Research findings can quickly become outdated and no longer reflect the true state of the current market and consumer behavior.

Finally, minimalist design is a multi-level, multi-dimensional concept, and different consumers may have different understandings and expectations of "minimalism". Research may not be able to fully cover or explain all consumer perception differences in minimalist design.

2 LITERATURE REVIEW

2.1 Introduction to Muji products

MUJI is a Life style store that represents a way of life. It originated from Japanese designer Ichiro Tanaka and represents the concept of "simplicity, natural environmental protection, and emphasis on design"(MOIN,2019). As a passage online introduces it, "MUJI is a well-known brand in Japan and even the world today. Its design philosophy, aesthetic propositions, material selection, and so on have transcended the limitations of product brands and become a synonym for a way of life. In Japanese, it means no pattern, and MUJI means "No Brand". However, relying on its simplicity and the method of restoring the essence of commodities, the pursuit of low-key Muji products has become a world-famous "No Brand", achieving the realm of "great music has the faintest notes, great form is beyond shape" as the ancients said(Kobayashi,2016).

2.2 Main Uses of Muji Products

MUJI is a famous Japanese department store brand with a wide variety of products, mainly focusing on daily necessities, including kitchen utensils, bedroom furniture, clothing, school supplies, and food. The packaging of these products is designed based on the concepts of simplicity, simplicity, environmental protection, and people-oriented(Nishikawa,2013).

2.3 Brand Influence

Muji Ryukyu was founded in 1980, and its founder extracted design concepts from daily life. The original meaning of "Muji Ryukyu" is "no trademark and high-quality", advocating a simple and natural lifestyle(Masuda,2019). Although Muji has a history of only over 30 years, it has gained a certain level of popularity and has developed rapidly, from the initial dozens of products to thousands of products today, and has its own packaging design team. Muji products are packaged in a simple manner, which makes it easier for customers to accept and enhances their impression and experience of the product(Jitpleecheep,2022). The packaging it adopts is unique, opening up a new world of packaging design, gradually forming brand design characteristics and styles, which have varying degrees of impact on Japan and even the world(Cing-Lian,2018).

2.4 Design Concept

MUJI Muji Good Product was born in 1980 and is a Japanese grocery brand. In Japanese, it means a good product without a brand logo, and its original meaning is "no trademark and high-quality".

Although it strives to downplay brand awareness, the products it produces following the unified design concept all embody the brand image of "Muji Good", and the natural, simple, and simple lifestyle it advocates is also highly respected (Muji, 2016). The biggest characteristic of Muji products is simplicity. The product does not have a brand logo, and there is no necessary design after removing everything. The packaging is simple and clear, without any irrelevant content. It only pursues the product's own functions and is simplified to the extreme. In the products of MUJI, it is difficult for customers to find their brand logo except for the red "MUJI" box. The initial design concept of MUJI was to create a batch of extremely simple and low-cost products by thoroughly simplifying the manufacturing process (Yang, 2020). What Muji does is to eliminate these tedious steps, simplify the production process, and create a large number of unique products.

2.5 Characteristics of Packaging Design For Muji Products

2.5.1 Packaging Color

In terms of color, Muji products are paired with various colors such as black and white, beige, light brown, and blue, giving people a sense of tranquility, brightness, nature, health, gentleness, and tranquility. It feels like they have left all the troubles in the world, returned to nature, opened up their hearts, searched for their id, relaxed and comfortable (Holloway, 2007).

The color selection of Muji products in packaging design takes into account the connection between people and the ecological environment. An important feature of traditional Japanese culture is the emphasis on the connection between material and environmental factors (Pillay, 2022).

In the prosperous and ever-changing commercial market, Muji products have attracted the attention of many consumers with their elegant color scheme, standing out among other products with messy colors, and stimulating consumers' potential purchasing desire. In traditional Japanese aesthetic concepts, both natural and monochrome colors are highly regarded (Setiowati, 2018).

2.5.2 Packing material

The quality of packaging material entails the degree of durability, hygiene, safety, environmental friendliness, and re-usability of a product's package (Imiru, 2017). Packaging material is any material used to protect something. The material used in packaging is an important element which prevents the product from any damage or loss. Consumers associate the packaging material with certain essential values of the product (Nilsson & Ostrom, 2005). According to Heide and Olsen (2017), consumer perceptions regarding certain packaging materials could change the perceived quality of a product. Hammed and Abdulaziz (2017) view quality packaging material as an important factor that drives the consumer perception towards the product and satisfies their needs and wants. The emphasis Muji places on functionality and sustainability is another reason why the company has adopted minimalist design. The items made by Muji are made to be helpful and practical, with an emphasis on quality, durability, and environmental impact. Muji produces goods that are both visually beautiful and considerate of the environment by utilizing natural materials, straightforward shapes, and practical ideas (Sugandha, 2023). MUJI's commitment to environmental sustainability goes beyond mere materials to include the entire lifecycle of the product (Masuda, 2019). From sourcing sustainable raw materials to ensuring designs that stand the test of time in terms of durability and aesthetic relevance, MUJI embraces a holistic view of sustainability (Hassan, 2023).

2.5.3 Font style

The fonts selected for Muji are usually very simple, without complicated decorations, and easy to

read. This font style is in line with the brand's concept of simple living (Ailun, 2021). Muji tends to use sans-serif typefaces, which are ideal for minimalist design because of their clear lines and open forms. Sans serif fonts are characterized by the removal of small decorations (serifs) at the end of the letters, making the overall visual effect cleaner and more modern (Nwobodo, 2023).

2.5.4 Printed information

Packaging information is any information displayed on or in a product's package to guide consumers in buying and using the product (Schuch *et al.*, 2018; Anyadighibe *et al.*, 2023). Labeling provides information regarding the product category, products ingredients, and product instructions. When making decisions on whether or not to buy a product, consumers are guided not just by product taste; but also by some other extrinsic factors, such as, brand awareness, labeling, price and origin (Benjamin *et al.*, 2019).

Muji's print information design pays great attention to simplicity, including only the necessary information, avoiding excessive text description and graphic decoration. Muji uses a simple lattice design in some printed messages to highlight the sense of tidiness and order of the message. Printed messages are usually in black and white tones, consistent with the overall minimalist color scheme of the brand, emphasizing the purity and legibility of the message (Edim, 2023).

3 STUDY VARIABLE

3.1 Selected variable

3.1.1 Packaging Color

Packaging color refers to the color or color combination mainly used on the packaging of Muji products, which has a direct visual impact on consumers and is a core visual element in packaging design.

Packaging color not only reflects a brand's visual identity system, but also affects consumers' emotions and feelings, which in turn may influence their first impression of a product, brand perception and purchasing decisions. In the context of minimalist design, packaging colors usually tend to be simple, natural, and colors that easily convey the essence of the product and brand value, aiming to strengthen the appeal of the product itself by reducing visual interference.

The purchasing attitude of consumers will be affected by the change of packaging color, and the packaging color factor is selected as the variable in this survey.

3.1.2 Packing material

Packaging materials refer to the main physical materials that make up the outer packaging of Muji products, which are selected for packaging design based on their physical properties, environmental properties, texture, weight and sustainability.

This includes, but is not limited to, paper, cardboard, plastic, metal, glass or any other natural or synthetic material. In the context of minimalist design, the choice of packaging materials not only reflects Muji's commitment to product quality and environmental responsibility, but also reflects its brand philosophy, which aims to reduce environmental impact through the use of the fewest and simplest materials, while ensuring that the functional and aesthetic requirements of the packaging are met.

Consumers are influenced by packaging materials when purchasing minimalist products, so packaging materials were selected as a variable in this survey.

3.1.3 Font style

Font type refers to the specific style of text and numbers used on Muji packaging, including but not limited to font design, size, thickness, spacing, color, and arrangement. In the context of minimalist design, glyphs are not only used to convey product information and brand concept, but also to influence consumers' perception and emotional response through their visual expression. Carefully chosen glyphs enhance the clarity and readability of the package while conveying the brand's personality and values, such as simplicity, modernity or friendliness. In this context, glyphs become a key visual element in design, as it directly acts on consumers' visual perception and emotional experience, which in turn may influence their attitudes towards Muji products and purchasing decisions.

Consumers will be influenced by font style when purchasing minimalist products, so font style is chosen as a variable in this study.

3.1.4 Printed information

Printed information refers to all the text, numbers, graphics and symbols displayed on the packaging of Muji products by means of printing. This includes product name, brand identity, instructions for use, ingredient list, production date, expiration date, business information, and any other relevant information. As an important component of packaging design, printed information has an impact on consumers' purchasing attitudes because it not only provides the information consumers need in the purchasing decision process, but also the medium through which brands communicate their values and commitments. Consumers are influenced by printed information when deciding to buy Muji products, so printed information was chosen as a variable in this study.

3.1.5 Consumer's purchase intention

Consumers' purchase intention refers to the propensity evaluation of consumers' purchase intention for a certain product or service. This attitude reflects the consumer's preference for the product, emotional connection, and pre-purchase evaluation, and can be based on the product's actual experience, design, brand image, perceived value, and other personal or social factors. When purchasing minimalist products, different packaging colors, fonts, materials and printing information will produce different consumer purchase intentions, so this study takes consumer purchase intentions as variables.

3.2 Relationship between variables and research hypothesis

3.2.1 Packaging color and consumer purchase intention

Color can stimulate consumers' emotional response, and different colors and color combinations can trigger different emotions and feelings. In minimalist design, specific packaging colors may be closely associated with the brand image, helping consumers quickly identify the brand and product. Consistent and unique color use enhances brand memory and promotes brand loyalty. From the perspective of visual appeal, the choice of color in packaging design is crucial to attracting consumers' attention.

H1: Packaging color has a significant impact when consumers choose to buy minimalist products.

3.2.2 Packaging materials and consumer purchase intention

High quality or unique materials may signal that the product is high-end, sustainable, or specially

cared for, thereby enhancing consumers' purchase intentions. As consumers become more aware of environmental protection, packaging using recyclable, biodegradable or environmentally friendly materials may be more appealing to consumers who are highly concerned about environmental issues. Packaging materials under minimalist design can appeal to consumers visually through their simple and beautiful appearance, in harmony with the overall aesthetics and philosophy of the brand.

H2: Packaging materials has a significant impact when consumers choose to buy minimalist products.

3.2.3 Font style and consumer purchase intention

Font style is an important part of brand image. A font that harmonizes with the brand image can strengthen consumers' awareness of the brand's uniqueness, while an inappropriate font choice may weaken the brand image and influence consumers' purchase intentions. Font style is an important part of brand image. A font that harmonizes with the brand image can strengthen consumers' awareness of the brand's uniqueness, while an inappropriate font choice may weaken the brand image and influence consumers' purchase intentions.

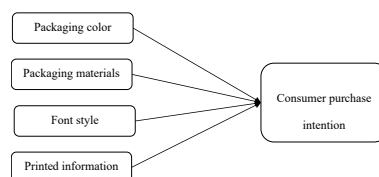
H3: Font style has a significant impact when consumers choose to buy minimalist products.

3.2.4 Printed information and consumer purchase intention

In the academic paper "Minimalist Design: Exploring the key factors influencing Muji packaging design on consumer purchasing attitude", the relationship between independent variable "font style" and dependent variable "consumer purchasing intention" is discussed. Under the minimalist design concept, printed information should be streamlined to the necessary to avoid too much irrelevant information to disturb consumers. Appropriate information can increase consumer satisfaction and purchase intention. Through well-designed printed messages (such as brand stories, ideas, etc.), the brand image and values can be effectively communicated and the emotional connection between consumers and the brand can be established.

H4: Printed information has a significant impact when consumers choose to buy minimalist products.

3.3 Model Diagram



4 QUANTITATIVE RESEARCH METHODS

4.1 Purpose of the questionnaire

Collect the thoughts of Muji consumers through questionnaires, break through geographical restrictions, expand the scope of research, and make the collected data more scientific. The method of sociological statistics is used to describe and analyze the number of surveys and obtain the

required survey data.

4.2 Distribution and design of questionnaire questions

After consulting the literature on minimalism and Muji product design, drawing on the research results of domestic and foreign scholars in this field, applying the fuzzy design theory and combining the remote data analysis theory, self-made and modified the questionnaire design "Factors affecting consumers' purchase intention when purchasing shadowless good products". The form of the questionnaire is closed, which is more convenient for respondents to fill in the questionnaire and collect and organize the data in the later stage.

According to the content of fuzzy design theory, the problems are divided into packaging color, packaging material, font style and printing information. Three questions are designed for each dimension, for a total of 15 questions. Using a 5-point Likert scale score, respondents were rated "strongly agree, agree, neutral, disagree, strongly disagree" on a scale of "5, 4, 3, 2, 1," with higher scores associated with higher happiness and vice versa.

Packaging color	I am more interested in packaging with simple colors and may buy the product because of that. Muji's product packaging color allows you to quickly identify its brand I think the packaging color plays an important role when I choose to buy Muji.
Packaging materials	Packaging that uses environmentally friendly or sustainable materials is more attractive to me and increases the likelihood of my purchase. I prefer to buy products that show high texture in the packaging material. I prefer to buy products that show high texture in the packaging material.
Font style	The clear, easy-to-read font style makes it easier for me to understand the product information and thus influence my purchase intention. The harmony of font style and overall packaging design can enhance my interest in buying. I think the font style is very critical in conveying the brand value and product identity of Muji.
Printed information	The amount of information printed on the package is just right, neither too much nor too little, which is important for me to decide whether to buy the product. I like brands that clearly show the benefits of the product and how to use it on the packaging. Simple, easy-to-understand printed information allows me to make a purchase decision faster.
Consumer purchase intention	I When the packaging design (color, material, font style, printing information) meets my aesthetic and informational needs, I am more inclined to buy the product. I am willing to pay more for Muji products whose packaging is well designed and reflects the brand value and product characteristics. Packaging design is one of the important factors I consider in all purchasing decisions.

4.3 Evaluation questionnaire design, distribution, collection and other processes

A total of 210 questionnaires were distributed, targeting consumers in Yunnan Province aged 20-40.

The questionnaire includes five dimensions: packaging color, packaging materials, font style, printed information and consumer purchase intention. Information helpful to the research was obtained by reviewing relevant literature, and combined with the characteristics of visual communication designers in the design industry, specific measurement indicators were scored on a five-point Likert scale.

Respondents agreed with item descriptions on a five-point scale of "strongly agree, agree, neutral, disagree, and strongly disagree."

5 DATA ANALYSIS FOR QUANTITATIVE RESEARCH

5.1 Descriptive analysis of important variables

Statistics

	N	Mean	Std. Error	Standard Deviation	Variance
Packaging color	210	3.78730	0.058601	0.849209	0.721
Packaging materials	210	3.77778	0.056314	0.816062	0.666
Font style	210	3.78413	0.063243	0.916481	0.840
Printed information	210	3.39206	0.071378	1.034359	1.070
Consumer purchase intention	210	3.59365	0.066711	0.966731	0.935
N	210				

Five variables of the questionnaire, "Packaging color, Packaging materials, Font style, Printed information, and Consumer purchase intention", were calculated descriptively. The average values were 3.78730, 3.77778, 3.78413, 3.39206 and 3.59365, respectively, indicating that there was no significant difference in the scores of each variable.

You can see that each variable has the same sample size (N=210), which means that each variable is based on the same number of observations. The average value varies between different variables, with the highest average value for Packaging color (3.78730) and the lowest average value for Printed information (3.39206). The standard deviation ranges from 0.816062 to 0.916481, indicating that the data points for different variables are slightly different in dispersion around their mean. The variance ranges from 0.666 for Packaging materials to 1.070 for Printed information, reflecting the volatility of data for different variables. Finally, the standard error varies from 0.0563 to 0.071378, indicating that the reliability of the estimated average value varies among different variables. Among them, the standard error of Packaging materials is the smallest, indicating that the estimated average value is the most reliable. These statistics help us understand the distribution characteristics and central trends of the data for each variable, and the differences between them.

5.2 Reliability and validity test

Reliability Statistics

Cronbach's Alpha	N of Items
0.939	15

Reliability is the reliability analysis of the questionnaire. In this study, Cronbach's Alpha was used to test the reliability of the scale. The total volume table has a reliability factor of better than 0.8, and between 0.7 and 0.8 is acceptable. The reliability coefficient of the subscale should be above 0.7, and 0.6-0.7 is acceptable. If Cronbach's α coefficient is lower than 0.6, we should consider reformulating the questionnaire. The statistical results show that the overall reliability of the questionnaire is 0.939,

and the coefficient is greater than 0.8, indicating that the data in this study have high reliability and good internal consistency of the scale.

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.865
Bartlett's Test of Sphericity		Approx. 2355.795
Chi-Square		
df		105
Sig.		<0.001

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	8.223	54.817	54.817	8.223	54.817	54.817
2	1.233	8.223	63.040	1.233	8.223	63.040
3	1.040	6.936	69.976	1.040	6.936	69.976
4	0.860	5.734	75.709	0.860	5.734	75.709
5	0.624	4.157	79.867	0.624	4.157	79.867
6	0.546	3.638	83.505			
7	0.455	3.031	86.535			
8	0.409	2.727	89.262			
9	0.380	2.534	91.796			
10	0.329	2.195	93.991			
11	0.253	1.689	95.680			
12	0.225	1.501	97.181			
13	0.187	1.248	98.429			
14	0.161	1.074	99.504			
15	0.074	0.496	100.000			

Extraction Method: Principal Component Analysis.

Before factor analysis of the questionnaire data, we used the Kaiser-Meyer-Olkin (KMO) measure and Bartlett sphericity test to evaluate the validity of the questionnaire and whether the data were suitable for factor analysis. The KMO measure results show a value of 0.865, close to 1, indicating that the variables in the questionnaire have a high degree of mutual knowledge, that is, these variables can share more information, which provides a good basis for factor analysis. In addition, passing the Bartlett sphericity test means that there is a significant correlation between variables, not completely independent, which is another important prerequisite for factor analysis. In summary, both KMO measure and Bartlett sphericity test indicate that the questionnaire data have good adaptability for factor analysis, and it is expected that effective factors reflecting potential structural relationships can be extracted from the questionnaire.

Further exploratory factor analysis, using principal component analysis to extract Packaging color, Packaging materials, Font style, Printed information, Consumer purchase intention five factors. The total variance interpretation rates were 80.0%. The overall results of exploratory factor analysis

are good. It can explain more than 80% of the information in the whole questionnaire.

5.3 Correlation analysis

Correlations

		Packaging color	Packaging materials	Font style	Printed information	Consumer purchase intention
Packaging color	Pearson Correlation	1	0.831**	0.827**	0.655**	0.827**
	Sig. (2-tailed)		<0.001	<0.001	<0.001	<0.001
	N	210	210	210	210	210
Packaging materials	Pearson Correlation	0.831**	1	0.672**	0.563**	0.732**
	Sig. (2-tailed)	<0.001		<0.001	<0.001	<0.001
	N	210	210	210	210	210
Font style	Pearson Correlation	0.827**	0.672**	1	0.717**	0.866**
	Sig. (2-tailed)	<0.001	<0.001		<0.001	<0.001
	N	210	210	210	210	210
Printed information	Pearson Correlation	0.655**	0.563**	0.717**	1	0.761**
	Sig. (2-tailed)	<0.001	<0.001	<0.001		<0.001
	N	210	210	210	210	210
Consumer purchase intention	Pearson Correlation	0.827**	0.732**	0.866**	0.761**	1
	Sig. (2-tailed)	<0.001	<0.001	<0.001	<0.001	
	N	210	210	210	210	210

**, Correlation is significant at the 0.01 level (2-tailed).

In order to further study the linear relationship among the five dimensions of Packaging color, Packaging materials, Font style, Printed information and Consumer purchase intention, Correlation analysis was used to measure the correlation between different variables. These correlation coefficients range from -1 to 1, where 1 means completely positive correlation, -1 means completely negative correlation, and 0 means no correlation.

As can be seen from the table, the Pearson correlation coefficient between all variables is mostly in the range of 0.7-0.8, and the correlation coefficient between other variables passes the test at the significance level.

The correlation coefficient between consumers' purchase intention and packaging color was 0.827, with significance <0.001, indicating a very strong positive correlation. The correlation coefficient with packaging materials was 0.732, and the significance was <0.001, indicating a strong positive correlation. The correlation coefficient with font style was 0.866, with significance <0.001, indicating a very strong positive correlation. The correlation coefficient with printed information was 0.761, and the significance was <0.001, indicating a strong positive correlation. The correlation with itself is 1 because any variable is completely related to itself. It can be seen that Packaging color, Packaging materials, Font style and Printed information all positively affect Consumer purchase intention, preliminarily verified H1, H2, h3 and h4 assumptions.

5.4 Regression analysis

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.909a	0.826	0.822	0.407598

a. Dependent Variable:: Consumer purchase intention

b. Predictors: (Constant), Printed information, Packaging materials, Font style, Packaging color

ANOVAa

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	161.267	4	40.317	242.673	<0.001b
	Residual	34.058	205	0.166		
	Total	195.325	209			

a. Dependent Variable:: Consumer purchase intention

b. Predictors: (Constant), Printed information, Packaging materials, Font style, Packaging color

Coefficients a

Model		Unstandardized Coefficients	Standardized Coefficients	t	Sig.
1	(constant)	-0.383		-2.748	0.007
	Packaging color	0.193	0.169	2.441	0.016
	Packaging materials	0.181	0.153	2.896	0.004
	Font style	0.475	0.450	7.894	<0.001
	Printed information	0.226	0.242	5.695	<0.001

a. Dependent: Consumer purchase intention

The estimated regression equation is as follows:

$$\begin{aligned} \text{Consumer purchase intention} \\ = 0.139 + 0.079 * \text{Packaging color} + 0.62 * \text{Packaging materials} + 0.60 \\ * \text{Font style} + 0.40 * \text{Printed information} \end{aligned}$$

$$R^2=0.826 \quad F=242.673$$

The value of $R^2=0.826$ of the regression equation is close to 1, indicating that the fitting effect of the regression equation is good. 82.6% of the change in the dependent variable can be explained by the change in the independent variable.

$F=242.673$, the corresponding p value is less than 0.001, at the significance level of 0.05, indicating that Packaging color, Packaging materials, Font style, Printed information, combined, It has a significant impact on Consumer purchase intention in general.

The p value of the estimated coefficients of Packaging color, Packaging materials, Font style and Printed information is all less than 0.05, and the p value of the constant term is less than 0.05. At the significance level of 5%, it can be considered that the estimated values of Packaging color, Packaging materials, Font style and Printed information coefficients are significantly non-zero. That is, the variable Packaging color, Packaging materials, Font style and Printed information are significant. It shows that Packaging color, Packaging materials, Font style and Printed information have a significant impact on consumers' choice of minimalist products.

6 CONCLUSION

Through the analysis of the collected questionnaire data, it can be seen that H1, H2, H3 and H4 assumptions are valid. When consumers choose to buy minimalist products, packaging color, packaging materials, fonts and printing information all have a significant impact.

Descriptive analysis results show that The average scores of the five variables in the questionnaire -- Packaging color, Packaging materials, Font style, Printed information and Consumer purchase intention -- were close. Moreover, the sample size of each variable is the same, which indicates that the survey has received relatively consistent feedback on these dimensions. This consistency means that there are no extreme differences in these variables.

Reliability and validity test results showed that the questionnaire had high reliability (Cronbach's Alpha = 0.939), KMO measure value was 0.865, and Bartlett sphericity test was passed, all of which indicated that the questionnaire design was reasonable, the data quality was high, and it was suitable for factor analysis. Exploratory factor analysis explained more than 80% of the total variance, indicating that the extracted factors were well representative of the information of the original variables.

Correlation analysis reveals that there is a significant positive correlation between packaging color, packaging materials, font style, printing information and consumers' purchase intention, among which font style has the strongest correlation with consumers' purchase intention (0.866), which emphasizes the importance and positive impact of various factors on consumers' purchase intention.

The regression analysis results further confirmed the relationship between the variables. The R^2 of the regression model =0.826 indicated the high degree of fit of the model, that is, the variables contained in the model could explain 82.6% of the variation of consumers' purchase intention. The results of the F-test ($F=242.673$, $p<0.001$) strongly indicate that the predictive variables in the model statistically significantly predict consumers' purchase intentions, confirming the validity of the study hypothesis.

7 SUGGESTIONS

7.1 The use of packaging color

Choose muted, natural colors: Avoid colors that are too bright or harsh, as minimalism tends to use more muted and natural shades. Colors such as beige, gray, white or pale wood can convey a simple, pure beauty.

7.2 Choice of packaging materials

Choose eco-friendly materials: Using recycled or biodegradable materials is not only in line with minimalism's environmentally friendly philosophy, but also appeals to the growing number of consumers who focus on sustainable living.

7.3 Font style design

Font size and color: The font size should be moderate, and the color should contrast well with the packaging background to ensure that the information is easy to read, while not standing out too much and maintaining the overall sense of harmony.

7.4 Communication of printed information

Simplify the information: Include only the most important information about the product, such as the brand name, product name, and necessary instructions for use or a list of ingredients, avoiding lengthy texts that distract consumers.

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