

A Study on the Design Method of Children's Food Packaging Based on Emotional Interaction

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Abstract

The growth of the national economy and the improvement of household consumption have had a profound impact on the design of children's food packaging. As household economic conditions improve, children's consumption needs and habits are becoming more diverse. Especially in the field of children's food, food packaging still plays a key role, not only to protect the freshness and safety of food, but also to create a pleasant and fun emotional atmosphere in the minds of children. The aim of this study is to explore the close link between emotional interaction and the children's food market, and to study approaches to children's food packaging design to provide beneficial insights to promote sales and meet changing consumer needs.

Keywords: *packaging design; children's food; emotional interaction.*

1. INTRODUCTION

In the face of the full range of children's food on the market, consumers' requirements are becoming more and more stringent. They not only care about food safety and nutrition, but also pursue a stylish and enjoyable consumer experience. The concept of emotional interaction emerged, emphasizing the interaction between the product and the user, focusing on the emotional experience of the user and the satisfaction of deep needs when using the product. Therefore, the integration of the concept of emotional interaction into the design of children's food packaging will have a surprising effect. Children's food packaging design, which was once more marginalized in domestic brands, will now become a key area for shaping brand image and enhancing brand competitiveness.

2. The characteristics of children's food packaging

As a special group of children, their physical and mental health is of great concern to society. Therefore, children's food packaging must be designed with their unique needs and characteristics in mind. This leads to the following characteristics of children's food packaging:

(1) Safety of food packaging

Children are a special consumer group, they are in a rapid growth period, their physical and psychological

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development is still immature, and their ability to distinguish problems and deal with things is very limited. In order for children to grow up healthy and happy, the safety of children's food packaging should be fully considered. At the design stage, we should fully study the physiological and psychological characteristics of children, and design should be scientific and reasonable, but also pour more human care, reflecting the care for children. In recent years, there have been frequent incidents of children's physical and mental injuries caused by food problems, such as the incident of poor quality milk powder in Fuyang, the case of choking young children in jelly, the case of lime desiccant. Most of these injuries are caused by unreasonable and irregular food packaging design. The primary consideration of children's food packaging is to ensure the safety of the product. Because children's immune systems are more vulnerable and vulnerable to external objects, packaging design must be based on safety. This not only helps parents trust products more when choosing and buying food, but also requires clear labeling of information related to food safety. In packaging design, it is necessary to comprehensively consider factors such as the safety of materials and the safety of functional operation.

(2) Convenience of food packaging

The convenience of packaging opening is undoubtedly a problem that cannot be ignored in the opening design. Usually consumers are accustomed to the convenience of packaging opening, but when the function of this convenience of packaging is flawed, consumers will notice it, especially children, if the packaging is difficult to open, then they are likely not confident or interested in buying again. In fact, the problem is not how to design easy-to-open packaging, because as long as the designer uses his brain and observes life, it is easy to find a way to solve the problem. Practice has proved that the opening methods that are usually considered extremely convenient by adults are extremely inconvenient for children. For example, if the cover of the seal is smooth, it is difficult to grasp and unscrew, and the ring rib around the cover is designed to increase friction, or the shape of the cover is designed to be square or other special shape to facilitate opening [1].

(3) the image of food packaging

Children are a special group, their visual aesthetics are different from adults, preschool children are more sensitive to the form of modeling, and the strange structure of modeling is more favored by them. Therefore, food packaging needs to make full use of vivid, novel and interesting elements in sensory attraction to attract children's interest. In terms of color selection, the design should be colorful and warm-tone-based, and in terms of shape design, vivid cartoon images are often used to attract children's attention.

(4) Comfort of food packaging

Modern children's food packaging design is based on the characteristics of the commodity and the needs and moderation of children's consumers, the use of modeling principles and aesthetic forms, the design of the structure should meet the aesthetic form. From the perspective of children, the design of children's food packaging is first aimed at the storage of packaging containers, considering the safety function of quantitative commodity packaging and modeling, and secondly at the tactile behavior of children. Therefore, the packaging structure of children's food packaging should consider the comfort of packaging, so that children's consumers feel safe and reliable in the process of use, reflecting the spirit of children's consumer-oriented design [2].

3. Emotional interaction in food packaging

Emotional interaction design can be divided into different levels, which are determined based on the depth of the user experience. In emotional interaction design, these three levels are sorted according to difficulty to achieve the design goal of reflection level, which requires the appearance and function of packaging to be

closely linked to the needs of users at different levels.

(1) Emotional interaction at the instinctive level

The first level is instinct, intuitive experience refers to the unconscious emotional experience that the user generates during the use of the product. This experience stems from the immediate stimulation of the product's appearance, color, pattern, and sensory channels such as the individual's vision, touch, and smell, although these stimuli do not last long. However, this experience is crucial for packaging design, especially when it comes to children's food, as children often make choices based on intuitive experiences.

How to attract children's attention? The concept of emotional interaction applies multiple sensory channels to the exterior design of children's food packaging. First, visual stimulation is the most effective way. When it comes to visual design, color and shape are the key focus. Many studies have shown that color is the best way to attract children's attention. Children have special perception needs for color, so design should start with the study of children's color psychology to increase the attractiveness of products. In addition to color, packaging styling is also an important design element. At present, children's food packaging often uses familiar cartoon characters to attract their attention [3]. Second, auditory stimulation is also concerned, and packaging can attract children's attention by making sounds. According to the concept of emotional interaction, the design allows the packaging to produce pleasant music or sounds when interacting with children, usually small pieces of music that children enjoy. Hearing and touch can be combined to produce different melodies when children touch different parts. In short, the application of multi-sensory channels mainly involves vision and hearing, but the tactile and olfactory characteristics of packaging can also be considered.

(2) Emotional interaction at the behavioral level

The first is the instinctive layer, which is the user's intuitive feeling during the use of the product. The second is the behavioral layer, which is the emotional experience of user satisfaction with product functionality. The experience of the behavioral layer stems from a feeling of comprehension, operability, and efficiency in the use of a product. Compared with the first sense of instinct, the emotional experience of the behavioral layer is more rational.

In the design of children's food packaging, the behavioral layer experience focuses on the functional performance and efficiency of the product, which can also be considered as an evaluation experience. Children typically have relatively weak capacities at the behavioral level, so packaging must be designed with this in mind to ensure that they can quickly understand and use the product. There are obvious differences between children's food packaging and adult food packaging, usually smaller, and suitable for drinking directly. In terms of multifunctional design, traditional packaging is usually relatively simple. However, under the concept of emotional interaction design, considering the emotional characteristics of children, children are encouraged to interact with packaging, which is based on the basic functions of packaging. The various functions of packaging are also based on meeting the psychological needs of children. This approach enhances children's positive emotional experiences and reduces the likelihood of negative emotions [4].

The design of children's food packaging must meet the needs of children's packaging, because it is essential to meet the psychological requirements of children. Emotional interaction design has been widely adopted in the behavioral layer of children's food packaging. Overall, due to the relatively low cognitive level of children, packaging design must face the challenge of making it easy for children to use. Many children may feel irritated, angry, and helpless because they can't understand the function of packaging, which contradicts the idea of emotional interaction design. Therefore, the design should achieve a variety of functions based on simple operation to meet the needs of children.

(3) emotional interaction at the reflective level

The third is the level of reflection, emotional experience is the emotional experience formed by the user

after establishing a long-term relationship with the product. Unlike emotional experience, emotional experience is formed by the accumulation of related emotions and has a more lasting impact, such as a sense of achievement, pride, and aesthetic sense. This experience stems from the user's recollection and reflection on the long-term use of the product, often closely related to the user's personality and psychological characteristics.

The reflective layer's focus is on creating deep, personalized emotional experiences, especially in children's food packaging design, which means providing care for children's deep needs. Because children have not yet formed a stable psychological characteristics of personality, their growth process is mainly passive by the external environment influence and care. Therefore, the ability to provide useful guidance and care is crucial to shaping their development. Considering these characteristics, the reflective layer of children's food packaging in emotional interaction design has the following characteristics:

First, packaging design aims to create an emotional bond between children and products so that children resonate with packaging in terms of appearance and function. This means that the packaging or product should be consistent in appearance and function with children's values and interests, such as their family, favorite anime characters, heroes, desired occupations, and so on. Packaging design aims to create an ideal symbol in a child's perspective, but this must be based on an in-depth study of children's groups. Second, the goal of the design is to stimulate context-specific memory experiences through emotional interactions that allow children to link packaging to life scenes or past use cases to build memory links about products and scenes. Children often remember vivid scenes, and once this memory link is formed, they may become psychologically dependent on the product. For example, packaging design can present scenes of affection and friendship, and can also promote activities such as parent-child interaction and peer interaction through the use of packaging to stimulate positive emotional experiences associated with these scenes. Finally, the design should gradually change as children grow up to meet their evolving psychological needs. Children's development is a dynamic process, and in emotional interaction design, design grows with children. Children's food packaging can form a growing series, the core of which is still concerned with meeting children's deep psychological needs. Although many changes occur in children as they grow up, their deep psychological needs often remain relatively stable, but the external expression of these needs changes significantly. Emotional interaction design needs to capture the changing and persistent needs of children as they grow up in order to foster loyalty to the product.

Overall, in children's packaging design, achieving a reflective layer of emotional interaction is the most challenging. This is because children's personality and psychological characteristics are not stable enough and they are still evolving and maturing. They may constantly modify their interests, or they may change their attitude to the product because of growth, emerging products, and even temporary emotions. Therefore, design must be truly child-centered, continuously in-depth and focused on children's development dynamics, in order to successfully create products that meet their needs.

4. A Study on the Design Method of Emotional Design of Children's Food Packaging

The humanized design of children's food packaging mainly reflects the physical and psychological needs of children; has a certain visual beauty, form, proportion and scale meet human aesthetic standards: pay attention to environmental protection and energy saving. Therefore, children's food packaging should use emotional design methods to realize and realize the aesthetic method of emotional design of children's food packaging, mainly reflected in the following four aspects:

(1) Interactive Design of Life Scenarios

"Feeling" refers to the subjective essence of designers such as "feeling", "emotion", "thought", "thought",

"thought", "thought", and "thought", etc.

The interactive design of life scenarios is an artistic means of modern packaging design, which combines life and scenery, applies objects outside the packaging screen to the packaging, and makes the packaging and objects fuse together to produce emotional association and synesthesia. Such as the use of love and loved scenes in children's food packaging mixed with the child's mother's hand, it will make people have a mother-daughter association, so as to achieve humanized design thinking. The interactive design of life scenarios is mainly designed in the following two directions:

The first is the interactive color design of life scenes. Color has a strong visual impact, while making children emotionally resonate. Interactive color design requires respect and care for human nature and creates a harmonious and comfortable color environment. According to the expression law of color emotions, play a variety of psychological characteristics of packaging materials, attract children's interest and attention, make it infected by specific emotions, and present a positive and active psychological activity. Emotions generated by packaging color and material color. It is a two-way interaction that ultimately leads to the act of buying.

The second is the interactive graphic design of life situations. The interactive graphic design of life situations has rich connotation and design conception, and the interaction with children should be based on simple graphics. On the one hand, it is determined by the characteristics of the graphics themselves transmitting information, and on the other hand, it is an important means to adapt. Correctly grasp the graphic mood in life, use humor, exaggeration and other techniques, express the content of graphic creativity, transmit design ideas and creativity, so that children can easily accept. Due to the differences in the characteristics of packaging design and children's perception, the ability to interpret graphics is different, so the grasp of graphics aesthetic artistic conception semantics is particularly important. Therefore, the presentation of life scenarios in packaging should be refined from reality to meet the eyeball needs of different children's consumer groups, some from simple graphic design, which of course is not completed by simple superposition elements.

The protection function of the packaging designer for life scenarios and the interaction of human emotions are an innovative combination of practicality and novelty. This combination must be properly combined and not produce a frightening effect, because children's minds are relatively simple and prone to negative associations and synesthesia. Therefore, it is necessary to design a packaging that can guide children with skills and make them produce visual aesthetic emotions, which can produce humanized visual effects.

(2) Cartoon design

Children have the most basic understanding of various cartoon characters through various media such as television and comics, and in children's development, they usually imitate their favorite and familiar cartoon characters and enjoy it and take pride in it. In the process of consumption, they will also love the products with their favorite cartoon characters: parents will also be loved by their children because of the goods, but also rich in their expectations for the next generation to grow healthy and happy. Using the developing cartoon culture, it can play a good artistic effect by applying the cartoon image of Jingsong, stealing fast, cute and educational to the packaging design of children's food. According to the popular cartoon image of children, it is divided into the following three categories:

It's a lively and lovely type. The use of some cartoon images in children's food packaging, such as: Doraemon, Happy Sheep, Winnie the Pooh, this kind of cartoon image has a soft and round curve shape, which is more consistent with children's physiological characteristics.

The second is solidarity type. Solidarity and fraternity refers to mutual help, mutual support, solidarity and cooperation, and common development in the story of relationships between people, in order to achieve common interests and goals. Solidarity and friendship can create a harmonious atmosphere between people and strengthen the cohesion between people. Good companionship is an indispensable factor for children's emotional satisfaction. Therefore, such cartoon characters will also be favored by children.

Three are super-capable. Ability refers to the individual psychological characteristics required to master and use knowledge skills, it is divided into general and special abilities, general ability can refer to most people's common needs, such as observation, memory, thinking, imagination, attention. The use of some super-capable images in children's food packaging can add a certain amount of fun.

The application of a large number of cartoon elements in children's food has played a good role in promoting the sale of children's food, but in the design of children's packaging, the use of cartoon elements

should follow certain rules. The application of cartoon elements should follow the following principles:

First, cartoon elements should be familiar to children. Cartoons that children are exposed to through various media are more acceptable to them. These cartoon elements are applied to the design of products, which can evoke children's memories and have a great impact on the sales of products. Second, cartoon elements should be healthy and positive. The process of children using commodities is also a process of learning. Healthy and positive characters help them form a healthy outlook on life and play an important role in children's ideological and moral education. Third, cartoon elements should retain the original characteristics of cartoon images. The use of cartoon elements for children's food packaging design, in terms of color modeling, should try to retain the original characteristics of the cartoon image. This will make it easy for children to recognize these cartoons and stimulate their curiosity to learn more about food, thus making a deep impression on these foods with cartoon elements.

(3) Design of Bionic Forms

In the bionic design of children's food packaging, it is necessary to study the structure and morphology of living organisms, understand and excavate their inner harmony and wonder from the natural image. Specifically, we can find the contact point of biomimicry from the aspects of form, structure, color and graphics, broaden and extend the expression of packaging, and maximize the value of emotional interest, so as to realize the humanization of packaging. Therefore, the bionic design of children's food packaging should be carried out in terms of form, structure, graphics and color.

It is a form of biomimicry. Formal biomimetic design is the most interesting expression of packaging design, so it is most likely to be accepted and loved by children by imitating natural animals or plants in appearance form. Such as candy packaging box, figurative butterfly image, not only makes children happy, but also attracts children with the cute image of butterflies, making the packaging more elegant.

The second is structural bionic. Structural biomimetic design is usually done by analyzing the structural characteristics of all or part of an organism. Fully utilized and imitated in the design, so as to creatively design packaging that meets the psychology of children and is interesting. Packaging modeling uses plants in nature to design, giving children a kind of association, and can make the packaging more lovely with the structural characteristics of natural plants, which is accepted by the children's group.

Three are graphic bionic. Graphic biomimetic design is an art form of packaging content theme visualization, can be simple, fast, intuitive transmission of commodity information. Applying the symbols of the natural world to packaging graphics can vividly, delicately, and truly show the natural quality of the product, so that children have the desire to demand. Four are color bionic. The color of natural organisms is first of all the characteristics and needs of life, and its rich and complex color relationship and personality characteristics are of great significance to the color design of products. Color bionic design is the color intuitive response of natural plants or animals to children, such as biscuit packaging design, fruit and vegetable biscuit packaging shape using inverted trapezoidal structure, the whole looks like Hu Yubu shape. Sometimes it manifests itself as some comedic plot of life: sometimes as a grotesque and novel visual sensation; sometimes as an extraordinary exaggeration and montage, using the imagination of children to stimulate their interest in packaging. The fun design method of children's food packaging starts from the following three aspects:

It's a bold idea. Break down the dull traditional design expression, the use of packaging unlimited imagination, exaggeration, full expression of the designer's feelings given to the packaging, so that packaging in any way can be appreciated, but also with children's emotional interaction. Creative packaging will have a certain effect on children's aesthetic taste and psychological suggestions, and through the viewer's habits, perceptual setting and specific situational perception factors of the design work, it will produce a certain psychological effect. Italian designer Giovanni said, "Design is about moving into a supermarket with passion. "Today's children's food packaging design should be full of enthusiasm, full of love for life, spread their emotions, and fully express their emotions; the third is exaggerated. "The exaggerated method is the best means to highlight the characteristics of things. It is designed to consciously treat certain characteristics and personality of things beyond the actual artistic processing, clearly emphasize or reveal the substance of the object, give children an unusual feeling, and greatly enhance the visual appeal of modern children's commodity packaging.

(4) Interesting Design

The interesting design of children's food packaging will double the attractiveness and collectibility of products, increase the freshness of products, and stimulate children's associations to obtain spiritual pleasure and emotional satisfaction. The expression of interest in packaging design is rich and diverse, the key is to accurately and appropriately grasp the mood.

6. Conclusions

This paper discusses the characteristics of children's food packaging design, the expression of emotional interaction in food packaging, and the research on the emotional design method of children's food packaging. We should focus on children's physical and mental development characteristics when designing children's food, from the emotional needs of children, to design food packaging that can really make children like, and then cultivate children's environmental awareness.

REFERENCES

- [1] Rudolf Arnheim, *Art and Visual Perception*, Sichuan People's Press, 2006
- [2] Li Ying, Wang Jianmin, Man-machine Scale and Comfort of Packaging Container Modeling Design, *Packaging Engineering*, 2012(24): 42-45
- [3] Lu Xiaoyan, Wang Chunpeng, Exploration of "Emotional Design" in Product Design, *Beauty and the Times*, 2015(07): 110-112.
- [4] Wu Zhijun, *The Application of Natural Forms in Packaging Design*, *Art Life*, 2007(02):69-71.