

# The Application and Attraction of Color in Children's Food Packaging Design in China

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## Abstract

As packaging becomes closer to people's lives, children's food packaging is receiving more and more attention, while the requirements for children's food packaging are becoming more and more stringent. Currently, the Chinese packaging market is growing at a compound annual growth rate of over 6.79%, while the global packaging market is growing at a compound annual growth rate of only 3.1%, which indicates that there is an urgent need to recognize the contribution of packaging design to market sales (Interpack, 2020). The purpose of this paper is to discuss the importance of color in the packaging design of children's food produced in China, based on the children's perception of color, through the experimental investigation method to study the role of the psychological effect of color on children, to analyze the children's perceptions and preferences of different colors in food packaging, it is clear that the use of eye-catching and bright colors can attract children to buy the product. The study shows that in children's food packaging design, rich and reasonable color matching can attract children's attention and stimulate children's curiosity, which can effectively convey information and thus achieve product sales force.

**Keywords:** China, Children's Food Packaging, Design, Color, Cognition.

## Introduction

Parents in the choice of children's food, in addition to food safety and health, food packaging is also becoming more and more attention, children's food in the guarantee of safety and health under the premise of good packaging design can attract more consumers, to achieve better sales force. For food packaging design, a beautiful color support is very important, which brings consumers not only the joy of enjoyment, but also has a wealth of added value, can promote sales to a large extent. In children's food packaging design, the presence of color is still critical, and its role is no less than many elements in other food packaging (Rui, 2015). With the development of the times, the color in children's food packaging is also constantly innovating and developing, and while children's food conveys deliciousness to children, reasonable color matching will also bring children a pleasant mood. From large supermarkets to small stores, the color elements in the rich and diverse children's food packaging even serve

as a shopping guide, giving parents a guide to selecting better food for their children, so the study of the impact of color on children's food packaging and children's consumption psychology has become an important element that packaging designers must fully consider in their actual work (Bayi, 2016).

Color is the most active design element in packaging, accounting for almost eighty percent of the entire package design, and human psychology will be greatly influenced by the color of children's food packaging. When people look at the food packaging, they will first receive the color information in the packaging, and when the human brain nerves will produce mental associations based on the color after receiving the color signal (Fenglin, 2019). For children, when they are just born, their world is black and white, and as they slowly grow up, the world in their eyes begins to become colorful, and color has a very important impact on their growth and character. Color psychologist M. Lusher put forward the "color psychology effect", that color and character are closely related, and suggested that a child's preference for a certain color is the best reflection of his inner character, which can reflect the child's inner psychology and emotions (Lusher, 1947). Stan, a psychologist, spent three years studying the effect of colors on the intelligence of babies. He had children learn and play in different colored environments. It was shown that children in "pretty" rooms (e.g. light blue, yellow, chartreuse and orange) had an IQ 12 points higher than usual and became sharp and creative. Children in "unattractive" rooms (e.g., black and brown) had lower IQs and were sluggish by comparison. His research shows that "nice" colors make people feel comfortable, emotionally balanced, flexible and harmonious. Since different colors have different effects on people's psychology, colors also affect people's emotions and behaviors to a certain extent (Stan, 2020). This shows that colors play an important role in the development of children. For children, bright colors are liked by most children. Before the age of 3, children generally prefer bright colors such as red and orange because these colors are the most vibrant and receive the most visual stimulation, while after the age of 3, as they grow older, children differentiate their preferences for colors. Color scholar Fiba Bida has suggested that children who love red are generally full of energy, free-spirited, jumpy, and outgoing and direct, and like to socialize, but at the same time, these children can be impulsive and prone to conflict because of their strong personalities (Bida, 1990). Pink, generally girls like more, pink represents gentleness, like a princess, there is a young girl's heart, and parents are more intimate, but this kind of children's character is relatively weak, encountering problems first thought of escaping, will not first think of their own to solve the problem; blue represents peace, stability, blue boys like more, more calm character, calm in case of trouble, but also fall into a state of melancholy; green represents this Peaceful, fresh, like this kind of color of the child's character is relatively smooth, but because of the character is too mild, the probability of being bullied is relatively large; Orange, many experiments show that like orange children are more intelligent, because orange is a mixture of red and yellow, so the child needs to identify a little bit in order to identify it. This shows that the child's brain can dominate all the organs of the body very well. Orange is also a warm color and usually gives a warm feeling. With the relationship between a few simple colors and personality, it can be seen that colors have a great influence on a child's growth, and parents can also use colors to stimulate the development of a child's personality as they grow up, because colors are always present around us, and it can also be said that we are surrounded by colors every moment of the day.

**Literature Review**

Color is an indispensable part of the visual language, has an important role in design and art, people can use color to express feelings, convey information or can express the significance of a certain cultural symbol. Color has the wonderful ability to express people's inner feelings and stimulate people's visual nerves, which can quickly capture people's desire to consume in a relatively short period of time. A good product must have the corresponding color matching, so as to achieve the role of publicity goods (Zhu & Chuanpeng, 2010). Color can directly or indirectly on the human physiology and heart to carry out a huge impact of color applied to packaging design is a means to promote consumption, reasonable color matching can make the product invincible in the market, thus greatly improving the status of the enterprise (Shi & Xiaorong, 2018). For children's food packaging design, color is equally important, children's food packaging will add different colors, bring a consumer different feelings and associations, and for children, through the color will have a preliminary understanding of the product, children can also use the function of color to identify the information brought by the product. Color can enhance the attraction to children, color symbolism is one of the most influential factors. Different color combinations magnify and beautify the characters in food packaging beyond measure (Zhan & Qiao, 2019). According to the theory of color science, when the color matching is carried out mainly cold color system and warm color system, in which the cold tone is mainly blue, green, purple and other colors, which are tone-heavy color system, and the warm color system is mainly yellow, red, orange and yellow-based colors. The main role of warm colors can make people have a warm heart and warm feeling, and most of them are used in food packaging. Children's food packaging usually use bright colors, so that the packaging image is more distinctive, while more visual impact. In addition, the color can also increase the childishness of the product, for children, childishness is very important, interesting products to attract children's attention, in the packaging design, through different color combinations, children's favorite graphics, patterns for children to create a healthy, full of childish world.

**Analysis of the current situation of children's food packaging color design**

In all food packaging design, children's food packaging design belongs to the most rich form, the most bright colors, the most interactive packaging design. The effect of packaging design is ultimately reflected by the color. Psychology related research shows that the human visual organs, in the observation of objects, the initial 20 seconds of color sensation accounted for 80%, while the shape of the feeling accounted for 20%, two minutes later color accounted for 60%, 40% of the shape, five minutes later each accounted for half, and this state will continue to maintain. It can be seen that color gives a quick, deep and lasting impression (Xin, 2006). From the above study, we can see that color affects people's observation of things, and for consumers, accurate color application can help consumers' identification and enhance the memory of products. Because children belong to a special consumer group, children do not think too much when they choose to buy food, they will choose their favorite by their first feeling, and usually the first favorite food is often through the color of the food packaging to attract the attention of children, therefore, color has a vital role in the children's food packaging design. Children's food design with a sense of freshness and creative development is the main task of the new period. Excellent designers' design solutions can be recognized by children, and color in the process of children's packaging should ensure both the basic needs and highlight the aesthetic requirements of children (Zheng & Xinrui, 2020). For example,

some children have different needs for the taste of food, most children like the taste of sweet food, and do not like spicy food, so in the packaging design we can use the colors that represent the sweet taste, and avoid the appearance of colors that represent the spicy taste, which is also combined with the preferences of children, can be targeted to design children's food packaging design. At the same time, children also need to get perception through the color in the package, with affinity for children's food packaging more received by children's favorite.

Children's food is a huge consumer market, from the current point of view, children's food packaging design often lack of interest, the color of the packaging does not refine the children's age group, did not take into account the differences in children's color aesthetics, stimulate children's visual aesthetics, so that children's color aesthetics and food color aesthetics, through the color of mutual attraction, through the use of color, to meet the needs of children, so as to produce purchase Behavior. Children's food packaging color can give consumers taste hints, which comes from the children through the color of food packaging and color association. Color association means that when a person sees a color, he or she will instinctively or unconsciously associate the color he or she sees with past experiences and feelings, which is the end result of the mental activity of a person for an objective color (Zhang, Guangchao, 2023). Children's associations with colors are figurative color responses, where children's perceptions of colors are associated figuratively with things they perceive in their own lives, and seeing a color is associated with something in reality. For example, if you see red in the food packaging, you will think of strawberries, apples and other sweet taste, and when you see orange, you will associate it with the taste of oranges, oranges and other sour taste, these are the gustatory cues brought to children through color. If you want the product to stand out, you should master the visual psychology of children and make reasonable color matching.

With its standardized, standardized and unique design, the packaging color can meet the consumers' emotional consumption psychology and their personalized pursuit of new and different, so that the enterprises can have consumers and win customers in the market competition (Zhangwei, 2005). Children's food consumers and their parents as the main consumer groups, want to enhance the sales force of the product, we must start from the consumer, the use of color to enhance product packaging, first of all, we must seize the color psychology of consumers. Color psychology refers to the subjective psychological response caused by the objective color world. Different wavelengths of light acting on the human visual organs in the production of color sense, but also will inevitably lead to some emotional psychological activities (Wenbo, 2008). In children's food packaging design, color is the most influential psychological factor for children, because color has a strong visual impact, children can extend a lot of associations through color, and produce the psychological behavior of like or dislike.

### **The role of color in children's food packaging design**

Color has an obvious eye-catching effect, and this effect is described in technical terms as eye-catching". The higher the natural saturation of colors, the higher the eye appeal; conversely, the lower the natural saturation of colors, the lower the eye appeal (Yanyan, 2015) According to research on children's color preferences: children prefer natural bright colors, which are more likely to attract their eyes. Therefore, the use of color in children's food packaging should be in line with children's aesthetic preferences, which can intuitively convey the

information of the product through color, and at the same time, color should give the product aesthetic, give children visual aesthetic satisfaction, stimulate children's senses, make the packaging color fit with children's color aesthetics, and finally trigger consumption behavior (Guangchao, 2023). For example, in the packaging of children's juice rainbow candy (Figure1), the package as a whole adopts red color with strong visual impact, which can attract children's first visual attention from the color. At the same time, red has a strong color saturation, bright colors, in line with children's preferences, has a strong eye-catching, can effectively attract children's attention. In addition to the main color of red, the packaging also uses the color of the rainbow, rainbow color is also a very popular color for children, the rainbow symbolizes beauty, fairy tale, nature, fantasy, in this high saturation packaging into the color of the rainbow, and the packaging to increase a beautiful color, but also more received by children's favorite. The rainbow color in the packaging and the name of the product "rainbow candy" fits, and the candy inside the packaging is colorful candy, from the overall packaging to the inner food are to give children a colorful visual sense, in order to meet the needs of children's tastes, through the color cleverly convey the effective information of children's food, color and in line with Children's aesthetic preferences, to meet the needs of children, and ultimately achieve consumer behavior, which is also the effective role of color in children's food packaging.



Figure1. Mars China Food Ltd.

Color has the role of taste hints. Children's food packaging color will give children some taste hints, such as some children's food, the same product has a different taste, in the packaging will be combined with the taste of food using similar colors, to facilitate children to distinguish and identify, which is also a color association. Color as a medium, through the color guide children for the judgment of food taste, combined with food packaging will also appear in some graphics, to help children for the choice of food, graphics and color, to help children for the choice of food flavors to give certain hints, accurate information like the children's communication of food flavors, color as a medium, children's food and children's consumers are closely linked. For example, Mengniu Group's Pure Zhen children's yogurt packaging (Figure2), this yogurt has four flavors, namely, original, yellow peach, grapefruit and pomegranate flavors, each yogurt flavor corresponds to the color of the packaging, at the

same time, there is a fruit pattern on the top of the package, to help children identify the taste of the product. For example, for the grapefruit flavored yogurt, the color of the packaging bottle adopts orange-red, which is similar to the color of grapefruit, as the main color of the packaging, and on top of the packaging bottle, there is also a large grapefruit printed on the top of the bottle, which allows children to quickly identify the taste of the product, and the packaging is then added to the appropriate textual information, which helps parents to effectively identify the product information, and can help children to decide whether or not they need to buy it. Different flavors of the same product, in line with the needs of different children, but also to allow children to have more choices, the color can be very convenient to help consumers identify the taste of the product, but also visually will help children, to bring the children some taste hints, and then combined with graphics and other pictures, can be convenient for consumer identification and selection, to achieve the purchase intention, and ultimately produce consumer behavior.



Figure 2. Pure Yen Yogurt China Mengniu Group Co.

Color has the effect of strengthening the brand. Human vision is limited, can not see clearly from a distance the specific brand of the product packaging and its specific information, but we can generally see the basic color of the goods. Color is one of the elements in the brand identification system has the role of strengthening brand recognition. At the same time, color as a visual medium can also expand the publicity and brand exposure for food brands (Guangchao, 2023). In children's food packaging design, a strong sense of visual impact plays an important role in brand recognition, and this visual impact is usually brought by color. Some brands have a specific color, and this color usually has the role of representing the brand, which can make the consumers can quickly catch the product in the sight with a certain distance. For example, the children's sandwich cookie Oreo's cookie packaging design (Figure 3), sometimes, the color is not just a packaging, but also a brand IP, for a hundred years, Oreo has always insisted on using blue to emphasize that they are different from others, and successfully engraved the blue packaging in the consumers' memory. At the same time, any brand needs to find the right brand positioning, most food packaging, in order to whet consumers' appetite, will use warm colors, while the Oreo brand choose a jewel blue, when we see an object, the most stimulating brain is the color, and Oreo with blue packaging with the black color of the cookies, the first feeling brought to consumers is noble, but also this different cookie packaging color, successfully attracted many consumers (Hou qi, 2022).



Figure 3. Oreo Kraft Foods Ltd.USA

### Children's food packaging color performance methods

There are many ways to show the application of color in children's food packaging design. Many pictures in food packaging use photography to visually display on top of the packaging, and this intuitive expression method is very common in children's food packaging, and is also a very effective expression method. This intuitive way of shooting, directly displayed on top of the package, is more suitable for younger children's food, they are not particularly sensitive to the recognition of things in this period, for some exaggerated deformation of the graphic recognition will have some difficulties, therefore, this way of shooting, directly display the picture on top of the package, will be very easy to identify the content to be expressed. For example, Juice Source juice (Figure 4), each flavor of juice bottle with fruit patterns, large fruit directly displayed on the top of the bottle of packaging, fresh fruit pictures, from the top of the packaging can feel the taste of fruit, at the same time, this packaging color use accurate, with fruit directly expressed taste, a variety of flavors so that buyers have a variety of choices when buying goods, and for children This very direct way allows them to easily capture the information of the product and choose their favorite flavor.



Figure 4. Juice Source Juice, Hainan Juice Source Food Co.

Indirect expression is also common in children's food packaging. The indirect expression method is different from the direct expression method, which is a method of expressing the product through another form of transformation, instead of directly placing the product's photo on top of the packaging, with the help of association. Through a survey of consumers of different ages, occupations, nationalities and regions, it was found that among the same and similar products, the color design characteristics of some food packaging are too intuitive, resulting in the taste preferences and color psychology of consumer groups tending to indirect colors, and the colors of some of these special products must also be indirectly expressed in order to meet the color identity of consumers for their product color design (Ming, 2009). Depending on the gender of the child, boys and girls prefer different colors; typically, boys prefer blue and white and girls prefer red and orange. Merchants also divide food products into boys' and girls' models according to children's preference for colors, using colors to differentiate them, creating this indirect expression. Different colors and patterns of packaging, children will be based on their own gender characteristics and their own preferences, choose the right packaging products, at the same time, the different colors of the packaging is also in line with the child's time that has a sense of mystery to the opposite sex of the same age mentality. In general, whether it is a direct or indirect expression method, the main two aspects are the ability of the product to convey information and brand image appeal. The ultimate goal of food packaging design is to make it recognizable and attractive to children, that is, to have a clear and prominent visual impact, precise content expression and a serious and reliable food feeling.

### **Discussion and Conclusion**

Color is becoming more and more important in children's food packaging design, and it has become an effective way to convey information in food packaging design, and it is also an important element that cannot be missing. In children's food packaging design, we should stand in the perspective of children and parent groups, apply children's psychological effect on color to children's food packaging design, and use the way of color expression to achieve the overall improvement of packaging visual. Children's food is a trend of the times, and children's food is also an important development trend in future design. Combining the characteristics of color itself, understanding children's preference for color, understanding the inner world of children through color, enhancing the brand image through color, and finally achieving the purpose of promoting consumption. Of course, in the children's food packaging design, in addition to color, there are many places worth exploring and thinking about. Each children's food packaging is the result of a lot of research by designers to explore children's preferences and eventually design. In the future of children's food packaging design, the use of color must be a very important element of packaging design, combined with the color of the package, adding suitable graphics, text, can make the package more complete, more intuitive and comprehensive information, good children's food packaging design can attract more consumers, both children consumers or parent consumers, most of the choice of products are from the packaging design Therefore, in the future development, packaging design must be an important development trend, a beautiful children's food packaging design, can accelerate the flow of products, to attract more consumers, the formation of a strong purchasing power.



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