

Research on the Method for Improving Children's Food Packaging Design in Childhood

Guoqiang An¹, ChangKee Hong²

1. Visual Communication Design, Yeungnam University, Korea

2. Visual Communication Design, Yeungnam University, Korea

Keywords: Childhood, Children's food, Package design, Safety, Humanized design

Abstract: Children in childhood are minors and lack self-protection awareness. They are weak in responding to various food safety threats. Therefore, safety is the first factor to be considered in package design for children's food in childhood. According to the growth behavior and consumption characteristics of children in childhood and the control ability of children's thinking mode and behavior habits at this stage. This paper analyzes the safety factors of childhood children's food from the perspective of package design. This paper proposes to use the barrier package design to limit the unreasonable operational behaviors of children in childhood, and to establish the more appropriate concept of humanized safety design for the growth needs of childhood children in order to serve the groups of children.

1. Introduction

The package design of children's food conveys the characteristic taste of food, and it is also the exterior show of food safety issues. For the current over-packaging, form Over function, ignoring the importance of safety design in children's packaging[1-2]. This paper starts with the analysis of the psychological characteristics of childhood children, and seeks to analyze the safety problems caused by packaging. The more suitable and improved design makes the food packaging design of children more reasonable and safe, and minimizes the accidental risk encountered by the children in use.

2. Children in Childhood and Food Package Safety

2.1 Children's Growth Behavior in Childhood and Consumption Characteristics

Children in childhood refer to children aged 8-12. Children of this age are developing rapidly and are in the initial stage of life development thinking. They are developing towards adulthood in terms of thought, psychology, character and personality[3]. During this period, the physical characteristics of boys and girls changed, and the differences in personality were more obvious. During this period,

children gradually became able to think independently, their emotional consciousness became rich, their cognitive ability gradually increased, and their desire for knowledge became stronger. Their diet habits are greatly influenced by the mass media, companions, and parents. Because children in childhood have the ability to think independently and make decisions independently, they can realize simple consumption independently and produce some consumptive action. The research shows that children's consumption during this period is mainly to buy food, toys and learning products, of which the proportion of food purchases will account for more than 50%. They consider the product's practicality and personality when purchasing the product. However, for some complex consumer products, such as children's nutrition, daily necessities and so on, because children have limited ability to judge, they are mainly purchased by their parents. The purchase behavior of the children in childhood is a relatively simple purchase behavior of human beings.

2.2 Children's Food

Children's food refers to safe and nutritious food specially designed for children's growth and development needs. Children's food can be divided into 0-3 years old infant food and children over 3 years old according to the age of children. For children in childhood, due to the continuous development of their digestive system, the types of foods they need are mainly dairy products, convenient instant food, candy chocolate, puffed food and functional foods such as milk calcium tablets. There are two main consumers of childhood children's food: one is a children in childhood with a purchase behavior, and the other are child's parents.

2.3 Characteristics of Food Safety Package Design for Children in Childhood

Children's food safety packaging refers to the realization of safe packaging for children's food, the use of safe packaging materials, the use of rational structural design, so that the packaging can take into account the need of protect food quality, safety and beautiful appearance. The packaging safety design targets of children's food in childhood just for the children in childhood, special for the children with appropriate purchasing power. The children in childhood have special psychological characteristics. To the design, you have to carry out targeted analysis according to children's psychological characteristics: the various elements on the packaging should attract their attention; which food packaging the children will like in this age stage, which food safety design is been acceptable.

3. Safety Issues in Children's Food Package

3.1 Factor of Package Material

Among the factors in the safety of children's food packaging, you have first to consider whether the packaging materials will cause the damage to human health. Food packaging be called "special food additive". Packaging materials have become a "stealth killer" for food safety to a certain extent. The safety hazard lies mainly in the migration and dissolution of food by the toxic and harmful components of the packaging material itself and its attachments[4]. Although food packaging generally indicates the ingredients contained in the food or whether it is added, but it is not easy to estimate whether the packaging material will cause harm to the human body. For example, some food packaging mouths are designed in plastic. When children use food packaging, the packaging mouth made by plastic material. When the child is in use, the mouth constantly

touches the packaging mouth, and most plastic materials are not labeled hurtlessness to children. As shown in the Figure 1.



Fig.1 Packaging Mouth Made by Plastic Material

3.2 Factor of Package Structure

Children's curiosity is strong, and the unique and colorful packaging are easy to attract their attention. However, due to the limited self-control ability of children in childhood, if the structural factors, such as the standard, size, shape and opening method of food packaging are not reasonable, the children will easily be hurt when using it[5]. For the design considerations of some small items, it is also very important in the safety of food packaging. Small things in the food packaging may be “swallowed” by children, it would create a dangerous situation. For example, in some companies, the jelly packaging structure has similar size to child's throat. when a child using the jelly package, if the child squeeze and suck the jelly, the jelly will easily be sucked into the throat, which may block the trachea and cause suffocation. It is dangerous, as shown in the Figure 2. This situation is mainly due to the unreasonable design of the jelly shape, and the manufacturer does not pay enough attention to the safety design of children's food package.



Fig.2 Design of Jelly Structure Has Some Security Risks

3.3 Factor of Design of Package Decoration

Food package graphics design represent the cultural image of the food. In the design of children's packaging design, due to the consideration of cost factors and convenience of production, the packaging decoration design having the nature of exaggeration by combine pictures and text, and the effect of the warning signs on the packaging design not satisfactory. For example, the main design of the package shows more attractive on the pattern effect than the actual product. the children be attracted by the bright design of the packaging design to buy it but ignore if they like the food in the package, and the food be wasted. In addition, consumers always use the food packaging logo to get the quality of the food, the place of origin, the method of use, and the shelf life. Some food label contents lack of details describe. For example, the “production date” label appearing on food packaging not unclear. Some food package label contents are “production date: see the back of

the package”, some of the labels are “production date: see at the sealing point”, the identification of packaged foods is inaccurate and the position uncertain. As shown in the Figure 3.



Fig.3 Position of Packaged Foods is Uncertain

4. The Survey of Consumers' Cognition of Children's Food Package Safety Concepts

According the consumption characteristics of children in childhood, the children's parents, young people, and the consumers of children over 7 years of age as research object. Because of the children in childhood are so special and lack of judgement, only can achieve some simple consumption or simple purchasing behavior. For most of complex consumer, mainly purchased by their parents. Therefore, the survey respondents of the paper are mainly composed of children's parents, young people will become the parents in the future and children over 7 years age with independent thinking ability.

4.1 Survey Sample Selection

Adopt convenient random sampling, 250 questionnaires were sent to the Wanda Shopping Plaza and Wal-Mart supermarkets in the city of wuhan, Hubei Province of China, two ways of which were selected to issue questionnaires, the primary school and online mail. There are 250 questionnaires were distributed and 210 were collected. The effective rate was up to 84%.

4.2 The Set of Questionnaire

There are three test questions in the paper, it is about aware of the conception of children's food safety packaging, and whether it is necessary to add package information description to the packaging information.

4.3 Specific Survey Question Design

The children's food safety package concept questionnaire mainly wants to investigate whether consumers understand the concept of children's food safety packaging, and the choices of answers is: more understanding, only some understanding, don't understand. whether it is necessary to add the package information to the children food safety package information, the choices of answers is: So much necessary, necessary and “I don't care”.

4.4 Analysis of Survey Results

Through the investigation and analysis of the questionnaire, 15% of consumers choose to know more about whether they understand the concept of children's food safety packaging, 55% of consumers choose only some understanding, and 26% of consumers choose don't understand. As shown in the Table 1.

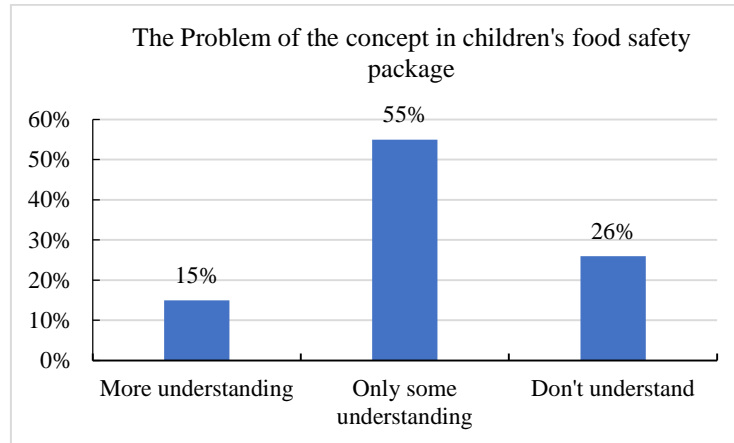


Table 1 the Position of Packaged Foods is Uncertain

The necessity of adding package information to children's food safety packaging information, 41% of the consumers choose is so much necessary, the necessary is 46%, and 9% of the consumers choose is "I don't care". It can be found that consumers have obvious needs in the introduction of package for children's food packaging from the survey. As shown in the Table 2.

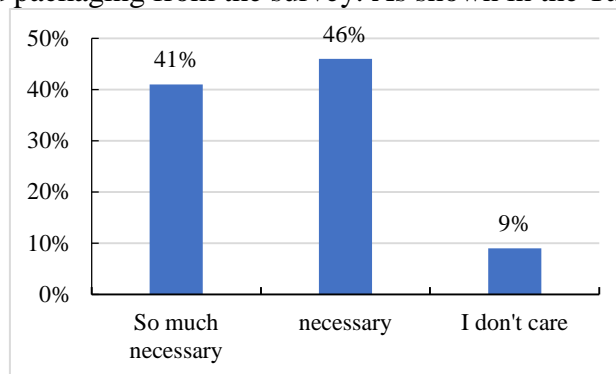


Table 2 Survey Whether It is Necessary to Add Packaging Material. Instructions to Children's Food Safety Package

5. The Main Way to Solve the Safety Design of Children's Food Package

5.1 To Improve the Structure and Appearance Design of "Barrier Restrictions" for Children in Childhood Food Package

The safety needs of consumers should be the first considerations when child use the children's food packaging. Because the child's thinking is still immature, the packaging will be used in any way that he want. However, the child's hand is not careful enough to operate it, and the self-protection ability is weak, so they lack of reasonable and safety judgment when they use it. For this reason, in order to avoid or prevent the disadvantages when child's hand operate the food package, some restrictive means can be utilized to compensate the defects when child use it[6]. The

so-called obstacle design, it means these barrier set could schedule to the product functionality, construction, material and so on, to improve the safety of product itself resort to the barriers set into operation. To protect the safety of children as the core of obstacle design, including the safety of producers and product users. In combination with the characteristics of childhood in children's food, preset "obstacle" in the design to ensure the safety of children's operation and product structure rationality. For example, in the design and improvement of children's jelly packaging structure, some obstacles can be designed to the jelly of both internal structure and external form, and the packaging can be improved into a packaging structure with a built-in straw device. When the child eating, only a little can be taken, so that The act of eating is effectively limited, the safety of children to be considered. Of course, the health and environment protecting of the built-in straw material also important. For small cup jelly, a spoon should offered as assists when the child eating. Even increased the complexity of operation, but it improve to the safety when children using it.

5.2 Adhere to the Humanized Package Design of "Suitable for Children's Consumption Psychology Characteristics"

The humanized packaging design that is suitable for the psychological characteristics of children's consumption is to design a design method to meet the children's related needs according to the body and heart development needs of children. On the one hand, the simple functional structure design is the first consideration. children in childhood are the special groups, their thinking is immature, but they are rich in imaginative thinking. Interesting or full of fun products are more likely to attract their attention. For example, cartoons or designs that mimic animal shapes are more likely to attract them. On the other hand, the interesting color communication design is also a major factor to consider. They have lively and simple psychological characteristics. They love bright and vivid colors. Therefore, children's food packaging can use bright three primary colors, for example like red, yellow and Blue to enhance visual impact, to stimulate children's interest and impress them.

6. Conclusion

Children's food package and children food safety are equally important to influence children's health and food safety. Therefore, it is necessary to consider the safety of consumers in the design of children's food package. In the choice of package materials, to choose non-toxic and healthy materials, to design combined with the user's safety in using and rationality structure of product, to use appropriate methods of barrier design to establish the safety of humanity for the psychological characteristics of children in childhood. The concept of design ensures children's safety in the use of products and promotes the development of children's health, so as to serve the groups of children in childhood better and better.

References

- [1] Liu Wenliang, Liu Rong (2013). *Exploring the food packaging benefited to children's intelligence*. *Art & Design*, vol.10, no.6, pp: 117-119.
- [2] Yang Jixiang, Du Yi, Wei Huang Wei (2018). *Research on symbol design strategies of children's food brand*, vol.1, no.2, pp: 92-93.
- [3] Jing Liwen(2020). *Environmental protection concept of food packaging design*. *Packaging Engineering*, vol.41, no.16, pp: 294-297.
- [4] Lü Linxue, Zhangqi (2011). *On the safety of food packaging design for infants and young children*. *Packaging Engineering*, vol.32, no.24, pp: 9-10.
- [5] Guo Xiangqian (2014). *Research on Moderate Packaging Design under Environmental Trend*. *Journal of Fine Arts*, vol.2, no.4, pp: 88-91.

- [6] Cai Yushuo (2014). Ways to solve the problem of packaging safety for children's products. *Packaging Engineering*, vol.35 , no.2, pp: 77-80.
- [7] Zhao Jun (2010). Analysis of operational behavior tendency in product design. *Packaging Engineering*, vol.31 , no.10, pp: 7-9.