

Research on the relationship between interesting design element codes and psychological aspects of children's food packaging

HONGWEI LI , ALBERT YOUNG CHOI

Graduate School, College of Design, Hanyang University ERICA, Ansan, South Korea
Correspondence: Faculty of Graduate School, Communication Design, College of Design,
Hanyang University ERICA, Ansan, South Korea

Abstract :In the food industry, children are a potential consumer group, and their packaging is no longer simply a reflection of visual image. Interesting design elements are one of the important factors to attract children's attention. They are coded through various visual elements such as color, shape, and pattern. Closely related to children's psychological relationship. This study aims to understand the concept of children's food, children's psychology and the concept of fun, the concept and psychological relationship between children's food packaging design element codes, and to propose effective designs by understanding the visual elements, expression methods and characteristics of excellent domestic and foreign children's packaging designs. The scope of the research is 3 types of children's food with high sales in 5 countries. The research method is to analyze excellent children's food packaging design cases and identify design features. A survey of 100 subjects is conducted, using a comparative analysis method. Research results show that interesting food packaging design element codes can satisfy the psychology of child consumers. According to research and analysis on children's food packaging design, bright colors, interesting images, and unique shapes are more attractive to children's psychology.

Keywords :Code, Design Elements, Interesting Design, Packaging Design, Psychology

I. INTRODUCTION

According to QYResearch's 2018 Global Children's Snacks Market Research Report, the children's snacks market is expected to grow steadily at a compound annual growth rate of 10-15% from 2018 to 2023 [1].In the food industry, children are a huge potential consumer group. Packaging should play the role of the first carrier in contact with food. It not only has the basic function of protecting food, but also promotes food sales and enhances children's cognitive and psychological abilities. Children, as a unique consumer group, are elusive.They often make food choices through emotional choices. Therefore, interesting element codes are added to the packaging of children's food, which should not only meet children's material needs, but also pay attention to the psychological pleasure and happiness that children obtain. In the fierce market competition, children's food packaging is no longer a pure reflection of visual image[2]. Interesting and humane design is the successful children's food packaging. Interesting packaging design can achieve in-depth exploration of the psychological world in children's minds and gain more psychological communication.

Research purposes

The purpose of this study is to firstly understand the concept of children's food and children's psychology and interest, and secondly to understand the relationship between the concept of children's food packaging design element codes and their psychology. The third is to analyze the advantages and disadvantages of interesting children's food packaging through the current situation investigation, and the fourth is to investigate the domestic and foreign children's food packaging designs for interesting children's food packaging.

Research methods and scope

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The research method is to first understand the fun of children's food packaging design through relevant research papers, professional books, seminars, newspaper articles, and related literature research methods. Design element codes and psychology are used as literature research methods, and secondly, use case analysis

methods to analyze the fun of children. Excellent example of food packaging. Third, in order to investigate the packaging design of children's food at home and abroad, a questionnaire survey method was used.

II. THEORETICAL BACKGROUND

2.1. Children's food concept

Children's food is specially made for children, and food targeted at children can be said to be children's food. Different from ordinary food, children's food refers to food suitable for children aged 0-12 years old.[3]. This is a way to entertain a child or address a child according to the rules. According to the main classification of children's food, the basic foods for infants and young children are milk powder from cows, sheep, and other animals, which are foods that can provide basic nutrition and energy to infants. Recipes for children aged 3 to 12 years are very similar to those for adults[4]. However, special foods such as milk and drinks for teenagers still exist for these consumer groups. [5] In addition, there are also very important parts in children's diet. That is the snacks that children like: puffed food, candy, juice, chocolate, milk drinks, etc.

2.2. Understanding of children's psychology and fun

With the rapid development of society and economy, adults and children are psychologically tortured by various pressures and negative emotions, which have a great impact on work, schoolwork, physical and mental health. Childhood is the golden period for cultivating a sound psychology. This period is based on a variety of habits and action patterns. Children's development process has six core elements: physiology, cognition, action habits, emotions, communication, and family environment, which are closely related to adults. Compared with children, they need more care, help and guidance[6]. The psychological development level of children is the motor development period (0 to 3 years old), subjective or personal skills (3 to 6 years old), and objective skills (6 to 12 years old). During the action development stage, children always achieve development goals through continuous feedback[7]. In the subjective period, there is the ability to learn symbols and perform preparatory logical thinking. In the objective period, children's main concern changes from themselves to external things, which is mainly due to the expansion of children's communication, the influence of school education and the development of intelligence.

Interests are those that lighten the heart, make people smile, or are hidden deep in our hearts. This word is inherently pleasant, interesting, and charming, expressing fresh energy and free creativity.[8] The expression of interest is the soul policy and goal that guides the direction of life, so it can be concluded that it guides, changes and improves our living standards and quality. Children's interest principles mainly include visual interest and tactile interest[9]. Children's first feeling comes from vision, especially the feeling of the object of attention. This mainly depends on whether things are interesting, what information is interesting, whether there are patterns, words, colors, etc. on the packaging[10]. Interesting features that form when purchasing a product, a problem that needs to be addressed through visual interest design element code. Based on visual interest, the tactile interest is expanded through the structural form and surface material of the packaging, allowing children to feel the effect of the toy when touching and playing[11].

2.3. Children's food packaging design element code concept and psychological relationship

Among human senses, the most developed sense is vision[12]. The interesting children's food packaging design element code means that the designer broke the existing ordinary packaging design form through original ideas and new designs, using children's color matching and novel and special packaging materials, and the packaging has a strong visual Effect[13]. Y Water brings a very interesting feeling to children and is also a representative work in the field of interesting design. After the children finish drinking, they can also collect discarded wrapping paper and make building blocks.



Fig. 1. Y Water

III. INTERESTING CHILDREN’S FOOD PACKAGING DESIGN FEATURES

Nowadays, more and more consumers are paying attention to the packaging of children's food, and designers have begun to improve the aesthetic function of packaging in order to cater to consumers' fun psychology. However, judging from the fun of current children's food packaging, most children's food packaging has a single style and cannot attract children's attention. Some designs are too exaggerated, have too many colors, the packaging design is not child-friendly enough, the product features are not prominent enough, and the psychology of children is not fully grasped. Children, as the reserve force for the development of the motherland, must be given adequate care and attention. [14]Because they are still in a state of development in all aspects, and their psychology and body are relatively special, the inherent attributes of this group must be fully integrated into the packaging design. Therefore, it is very necessary to use children of different ages as research objects to conduct analysis and research on their feelings about food packaging. Based on the obtained results, we can obtain the food packaging forms that children are keen on and put them into practice. Apply it to food design to increase your own cultural value and enhance product competitiveness.

As the food industry has entered a stage of fierce competition, various food production companies have achieved innovation and breakthroughs, and at the same time, provided the public with more products to choose from. Excellent product packaging design can attract consumers' attention to it, which in turn plays a decisive role in sales and whether it can stand out among similar products. We can integrate the packaging design concept of extended functionality into children's food packaging. As far as food packaging design is concerned, China started later than Western countries, and there is a certain gap in functional presentation and richness of form. Therefore, It is necessary to incorporate innovative consciousness and spirit into children's food packaging design to achieve breakthroughs and development. From the perspective of the development of foreign children's packaging design, it is not difficult to see that children's food packaging design has been relatively complete. Compared with food packaging design for adults, foreign designers pay more attention to the fun and visual communication effects of children's food packaging design. As well as its safety, it uses design elements, code graphics, colors and other design languages to attract the audience's attention. First of all, as an important visual factor in packaging design, graphics can intuitively convey effective information about the product and make the packaging more interesting. Secondly, color in packaging design is the most visually impactful expression in design language. According to different age groups of consumers, color preferences also need to be processed differently. Designers start from the colors that children like and design large-area Using several colors with high brightness and purity as the main colors of the packaging has strong visual impact, making the products full of fun and successfully attracting children's attention. Interesting packaging broadens the design ideas for children's food packaging in the future, and designers must pay attention to children's experience when using products.

Therefore, by exploring the children's food packaging design in developed countries such as China, the United States, South Korea, and Japan, foreign designers pay more attention to the fun and interestingness of children's food packaging design compared to the food packaging design for adults. Fun and visual elements code communication effects.

Because children are a special consumer group, they are a group with a vague concept of consumption. When designers design children's food packaging, they often ignore children's special psychological characteristics. This will cause many defects in the design of some children's food packaging, so it cannot attract the attention of children in the market. China's children's meal design leaves a lot to be desired. In order to grasp the psychology of children, it is necessary to combine more interesting elements with design to bring more beautiful packaging designs to children.

IV. QUESTIONNAIRE SURVEY ON CHILDREN’S FOOD PACKAGING AT HOME AND ABROAD

The purpose of this study is to examine the interesting packaging designs of Three representative brands of children's food at home and abroad, and to understand the impact on consumers' consumption psychology based on a variety of interesting expressions.<Table. 1>.

TABL 1. Questionnaire survey object description

Number of people	Age					Gender				Occupation
	Under 10 years old	10-20	20-30	30-40	Over 40 years old	Man	Woman	Student	Work	
100	16	18	35	21	10	41	59	70	9	21
Please rate the following 5 items of children’s food packaging design.										

This questionnaire survey asked 5 items of questions to the respondents based on domestic and foreign children's food packaging design. Respondents evaluated the visual effects using the 5-point scale of their respective packaging designs. The details are as follows <Table. 2>.




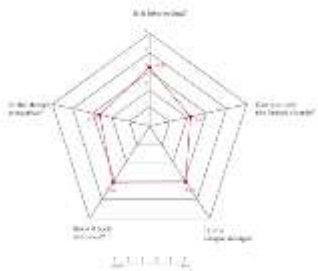
TABLE 2. Questionnaire instructions

Evaluation benchmark	Details
Interesting	1. Is it interesting?
Attention	2. Is the design attractive?
Conveyability	3. Does it look delicious?
Unique	4. Is it a unique design?
Readability	5. Can you see the brand clearly?

The results of the questionnaire survey on five representative children's food packaging designs at home and abroad are as follows:




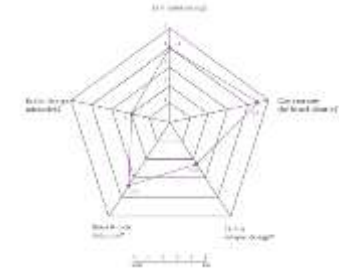
From <Table.3>, it can be seen that the packaging design of the children's food brand of Wangwang Snow Cake has the highest interest, with a score of 3.47. The reason is that the food packaging is designed as a music album, which increases the interest. Although children do not understand the meaning of its design, compared to other food packaging designs, which change the inherent form of the design, this novel and interesting design is more in line with children's psychology. In addition, the question about the readability of music scored the lowest, with a score of 2.3. Although children cannot fully recognize the importance of text, logo or brand information, parents, as children's consumer decision-makers, must not only consider children's psychology when purchasing, but also Decisions are made from a safety perspective such as brand information. Thirdly, the trademarks on food packaging are not clear and the information is not clear, which does not help parents make purchases well.

TABLE 3. 'Wang Wang snow cookie' design element code analysis

'Wang Wang snow cookie' design element code analysis					
Typography		Bold	Pixels Color System Analysis		The color is mainly bright red, which is consistent with the psychology of most children who like bright colors.
Layout Grid System Analysis		Grid: Preserve layout -Structural Principle: Highlight - There is a brand logo in the center of the package and a food text description in the upper right corner of the package	Likert Scale Image Analysis		




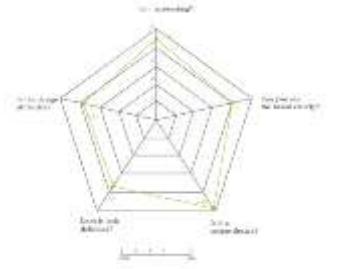
In the question in <Table.4> about whether the brand of chocolate 초코송이 is clearly visible in the design of children's food, the readability score was the highest, 4.51 points. The reason is that the trademark is on the top of the food packaging and consumers can clearly see it at a glance. Especially children, although their ability to understand information is insufficient, the way the logo is conveyed is bright colors, which attracts children's curiosity. In addition, in the question about whether the design is eye-catching, the attention score is the lowest at 2 points. This is because the use of characters in the packaging lacks creative design elements compared to other brands, so it is difficult to attract consumers. direct attention. In addition, colors have become more complex and the use of pictures has become more confusing, making consumers hesitant about purchasing decisions, thus affecting consumer psychology and purchasing psychology.

TABLE 4. ‘초코송이’ packaging design element code analysis table

‘초코송이’ packaging design element code analysis table					
Typography		HY Songiche Chocolate	Pixels Color System Analysis		The packaging design contains the fresh colors of nature, making it more vibrant and fun.
Layout Grid System Analysis		-Grid: Free layout -Principle of composition: change -The top is the logo, the right is the character, and the surrounding areas are natural materials and food photos.	Likert Scale Image Analysis		

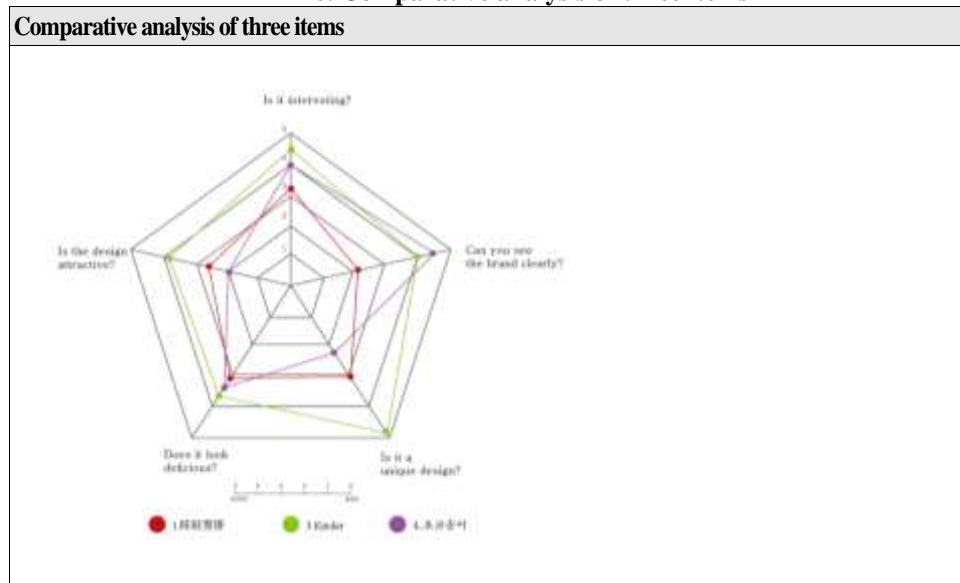
As can be seen from <Table.5>, Kinder chocolate packaging design has the highest uniqueness score of 4.81 points. The reason is that chocolate packaging attracts consumers with bright colors and unique shapes, so according to consumer psychology, packaging has Colors are more sensitive, so bright colors are more likely to attract consumers. In addition, in the question asked by designers about the conveyance of packaging, the score was the lowest at 3.73. The reason may be that the visual elements of packaging are relatively simple and do not use food photos or food information. It cannot be communicated well to consumers. Moreover, child consumers do not have the ability to consume on their own, and their parents purchase on their behalf, so food safety is given priority. Since there is no clear relevant information on the packaging design, the score is low.

TABLE 5. ‘Kinder’ packaging design element code analysis table

‘Kinder’ packaging design element code analysis table					
Typography		Sans serif font	Pixels Color System Analysis		To emphasize the originality of the food, contrasting colors are used.
Layout Grid System Analysis		-Grid: Preserve layout -Structural Principle: Highlight -There is a logo in the center of the package, and the various arrangement angles also add interest	Likert Scale Image Analysis		

According to the results of the <Table.6> mutual comparison analysis table of three items of three representative children's foods in China and abroad, although most of them showed excellent results in terms of fun, they showed poor results in terms of communication ability.

TABLE 6. Comparative analysis of three items



Low results. The one with the highest average score is Kinder’s packaging design. Wangwang Snow Cake, on the other hand, received the lowest average score for its children's food design. As can be seen from the above questionnaire results, there are significant differences in all aspects between designs with high average scores and designs with low average scores.

V. CONCLUSION

With the rapid economic development and the improvement of national living standards, people's consumption psychology has gradually matured. A successful meal plan design should not only attract attention, but also satisfy people's curiosity, be interesting, and promote consumption. The fun of packaging design is used as a new concept in children's packaging design, which can attract children's attention and satisfy their psychological needs. Through the analysis of three excellent children's food packaging designs at home and abroad, the results show that bright colors, interesting images and unique shapes are all important factors in children's food packaging design. A successful meal plan design should not only attract attention, but also satisfy people's curiosity, be interesting, and promote consumption.

In today's market, the graphic design of children's food packaging lacks creativity, colors are used too frequently, the text and layout design also lack the interesting factors preferred by children, and the form design does not closely follow consumer psychology. Therefore, designers should be more innovative, break with tradition, and have an interesting impact on food packaging.

Through the above content, in the future, in the design of children's food packaging, we should pay more attention to the world in children's minds, actively explore the innovation points of interesting elements for children, continue to enrich art forms and expression methods, and strive to create the artistry and interest of children's packaging.

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