Analysis of Visual Communication Packaging Design Based on Interactive Experience

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Abstract. With the continuous advancement of information technology, people's interaction and communication methods have also shown diversity. As a carrier of product and social communication, visual communication packaging needs to interact with people to reflect its due value. Therefore, with the change of the times, packaging design has also undergone great changes, and people's perception of product visual communication packaging design has been continuously changed. This perception is based on the interactive concept of product packaging design. This article provides new ideas for how to use new technologies and new methods to design interactive product visual communication packaging design.

Keywords: Interaction Concept; Interactive Design; Visual Communication Packaging

1. Introduction
The rapid development of social productivity in our country and the wide application of various new technologies and new energy sources indicate that our country has gradually transformed from an industrial age to an information age, and people enjoy the convenience brought by technology to daily life all the time. Therefore, people pay more attention to self-realization, so a variety of design concepts such as environmental design, interaction design and ecological design have emerged to meet people's needs from all aspects. As an item that can be seen everywhere in people's daily life, packaging design reflects the aesthetics of different times in different periods and plays an important role in the development of the consumer industry. The design of visual communication packaging directly reflects the level of technological development of this era, and consumers will not only pay attention to the quality of the product when consuming, but also pay attention to the function of the product packaging. Good packaging can greatly promote the product sales. From the perspective of interactive experience and concepts, this paper studies how the interactive concept is reflected in the visual communication packaging design of the product, what new technology is used for the visual communication packaging design of the product, and how to achieve interactive product vision convey packaging design [1].

2. The embodiment of interactive concept in visual communication packaging design
With the development of the digital information age, people pay more and more attention to the experience of interactive concepts in daily life. Then, to combine the interaction concept with packaging, you need to understand the needs of consumers. This requires packaging designers to divide the audience when designing, distinguish the concerns of different consumers when using this product, how they will use the product, and how they feel etc. when using the product.

2.1. Data requirements
In recent years, with the rapid development of my country's economy, people have paid more and more attention to the experience of product packaging, which has greatly promoted the development of the packaging industry, and at the same time has made it a major industry with the most development potential in my country. Due to the development and growth of printing technology, the process of product packaging design and production is very perfect. Therefore, what kind of packaging people need in daily life, what kind of product packaging can be welcomed by the public, and how to use product packaging to bring convenience to people's lives have gradually become the concern of businessmen [2-4].

In response to the above problems, we have conducted surveys and data analysis on citizens of different age groups (see Figure 1). Through these data, we can clearly realize that regardless of that age group, product packaging will directly affect consumers’ desire to buy. The packaging can more attract the attention of consumers, so as to achieve the purpose of sales.

![Figure 1. Analysis of whether packaging will affect consumers’ desire to purchase](image)

2.2. Functional requirements
In our daily life, there are countless product packages that can be touched. Different products will be designed according to their characteristics. For example, the packaging of food products needs to take anti-corrosion into consideration, and the packaging of glass products needs to take bumpy into consideration. Therefore, designers must fully understand the needs and behavior habits of the users of the product when designing the product packaging, so as to think about how to enhance the interaction with consumers through product packaging design.

Packaging design based on interactive experience must be combined with the product itself to enable consumers to have a better sense of experience. In daily life, it is not difficult to find that the packaging of many products is very unreasonable. Therefore, designers will improve the original packaging of the product according to the users of the modified product and the difficulties encountered by consumers when using it, so that consumers will be more convenient to use the product to have a good impression of the product, thereby increasing the sales of the product.
2.3. Other needs
The data requirements and functional requirements mentioned above are the main issues that designers need to pay attention to and consider in the initial stage of product design, so other requirements mainly consider the consumer's experience. Everyone's personality is unique, so there are differences in the habits of using products, and the same product packaging brings different feelings to different people. Product packaging based on interactive experience can effectively improve this point. Based on the investigation and research of product users, we design highly interactive product packaging, allowing consumers to dig out their own behaviors and habits during use. This product packaging not only considers the psychology of consumers, but also reflects the care for consumers.

3. Application of new technology in visual communication packaging design of interactive products

3.1. AR technology
AR technology is a combination of three-dimensional imaging technology, interactive technology, computer technology, multimedia technology and a variety of sensing technologies. Its realization mainly relies on these technologies to combine the real environment with the virtual environment. After the emergence of AR technology, people can feel the 3D effect in pictures, advertisements and animations, so as to get the experience of traveling through time and space. In the early stage of AR technology research and development, it was basically reflected and displayed by mobile phone screens, outdoor large screens, and PC client devices. However, with the continuous improvement of AR technology, its use methods have become more convenient and applied to product packaging design. This reflects the interactive nature of product packaging [5-7].

The product packaging has a full range of visual and auditory experience, which can make the interactivity appear well. For example, Coca-Cola cooperated with a Swedish music company in 2013 to launch a Coke bottle that can play music (as shown in Figure 2). Users can download AR applications on smartphones with Android and IOS systems, open the application to scan the coke bottle, a headset will appear on one side of the bottle and play music, and the other side can view the mv of the song. After the Coke bottle was sold, more than 70,000 users downloaded the AR application to participate and interact. It also promoted the sales of the Coke bottle and brought more revenue to the Coca-Cola Company.

![Figure 2. A Coke bottle that can play music](image-url)
3.2. NFC technology
NFC technology, or near field communication, is an evolution from the integration of non-contact radio frequency identification (RFID) and interconnection technology. The initial development of the technology is only used in bank cards. With the continuous development of NFC technology Research and development have realized the use of it for mobile payment, e-ticketing and mobile identification. However, many people confuse the application of QR code and NFC technology, but the two are very different. QR code has the characteristics of low cost and low threshold, but it has the disadvantages of long scanning time and low accuracy; NFC technology mainly scans the designated area, with high accuracy, convenient and fast, and the data after reading can be consulted at any time [8].

With the development of NFC technology, many designers have also used NFC technology in the design of product packaging. For example, Avery Dennison has used NFC technology in the packaging of food and medicine, and connected with users through smart tags. You only need to align the package and take a picture of the product, and you can get the product's instructions, product function introduction, after-sales service process and preferential activities on your mobile phone, as shown in the figure below.

![Figure 3. Application of NFC technology in product packaging](image)

3.3. Eye tracking technology
In order to know whether a product packaging is reasonable and what kind of product packaging consumers will pay attention to when purchasing goods, it is necessary for designers to ask themselves when designing product packaging, what consumers will first pay attention to Features, what packaging will attract people's attention? Eye tracking technology solves these problems for designers. The realization of this technology is mainly to collect information based on the position and duration of people's eyeballs, which is convenient for designers to grasp the psychology of consumers and perfect the product packaging. In addition, consumers’ aesthetics is also an extremely important factor, which will be changed by changes in the times and current affairs hotspots. Therefore, designers should also pay more attention to current affairs hotspots when designing, and adjust product packaging in time [9].

When designing the bottle of a certain shower gel, a company in the United States built a 3D simulation environment and placed different shower gels in different packages on the shelf, allowing people to wear glasses that can track eye movements to test them in sequence. A heat map of the viewpoint based on eye tracking (Figure 4) was formed. After the test results were analyzed, the shower gel packaging was improved, thereby increasing the sales volume of the product.
4. Visual communication packaging design based on interactive experience

4.1. Clear packaging design
If an excellent product packaging design is different in age, gender, and education level, people with different education levels can easily understand how to use the product. It is like a carpenter who directly hits a nail with a hammer when he sees a hammer, instead of discussing how to do it with the hammer. To use it is like the experience in daily life telling us to turn on the computer before using the computer, and to turn on the faucet when washing hands is the same.

The concept of interaction design requires designers to learn to switch roles, think from the perspective of consumers, consider the points consumers pay attention to when choosing products, consumers' behavior habits in using products, and consumers' aesthetics. Packaging exists in our daily life and can be seen everywhere. Therefore, people have concerns about the difficulty in understanding the use of new-type packaging products, designers should fully consider the consumer’s feelings and not overthrow the tradition in the case of packaging design, it is improved to design product packaging that adapts to consumers' habits and can make consumers use freely.

4.2. Packaging design based on rational spirit
When referring to the excellent packaging design at home and abroad, we found that these packaging all have the same feature, that is, they are simple packaging methods, simplifying the complex. In interaction design, it is not a good thing that the product packaging has many functions, it will bring some confusion to consumers. However, most product packaging in our country pays too much attention to formality and does not have any substantive effect. Therefore, when designing product packaging, it is necessary to consider how to make a packaging design that conforms to consumer behavior and habits in a simple design structure.

The interactive concept is mainly reflected in the structure of the optimized packaging design, so that consumers can easily understand the use of the product. The design that turns complex into simple requires simplification of packaging materials, appearance, structural space, etc., in order to give users a good product experience. For example, the packaging design of a smart light bulb from Philips (as shown in Figure 5) has the characteristics of simplicity. It can be seen that there is no complicated image structure on the packaging, and no unnecessary product introduction. There is a color card on the right side of the packaging box of this product, people only need to turn the color card gently, and
the light bulb in the center of the box will change to the corresponding color, and these colors are the colors that can be adjusted by the smart light bulb. So as to use the simplest way to make consumers understand the characteristics and main information of this product.

Figure 5. Philips smart bulb packaging design

5. Conclusions
To sum up, this article focuses on three aspects: how to reflect the concept of interaction in packaging, what new technology to use for interactive visual communication packaging design, and how to design interactive visual communication packaging, discussed how to design the visual communication packaging of products based on interactive experience and concepts and summarize the following results:

(1) Interactive product visual communication packaging design needs to understand and analyze the needs of different users in the early design stage, and use this as an entry point to improve packaging design.

(2) When designing the packaging for visual communication of products, it is necessary to start with packaging technology and think about how to apply new technologies to product packaging, so as to stimulate consumers' desire to buy [10].

(3) The packaging visual communication design of the product needs to be designed in a clear and rational way, so that people can easily understand the way the product is used when using it, and the product packaging does not need to pay too much attention to formality, it should be simple and simplified way to design.

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