

Tactile Sense and Emotion in Book Binding Design

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Abstract—Tactile is an important perception of our human feeling the world. By touching, we can get the most primitive tactile feeling, and apply tactile to the design of book binding, which will enrich the readers' emotional experience. From the perspective of tactile design, this paper studies the tactile design method in book binding design by analyzing the tactile expression, and builds a bridge between readers and books.

Keywords—book binding; tactile design; emotion

I. INTRODUCTION

With the development of digital technology, e-books and some mobile devices are becoming more and more popular, such as Amazon's kindle electronic reader, other applications and mobile phone reader or app. Their own has strong and rich resources of books. Readers can carry, without the restrictions of time and space, can read anytime and anywhere. Because of their convenience and practicability, they attracted the interest of readers all over the world, and the number of users increased dramatically. The development of science and technology promotes the reform of design. Modern design cannot be separated from the guidance of science and technology, and design makes scientific things more beautiful and endows them with emotion.

In this case, the existing physical bookstore also suffered a lot of impact. In the face of the challenge, paper publications, including books, are making all kinds of attempts and breakthroughs based on them. With the improvement of the design concept of the book and the rich of the material, and the progress of the printing process, the traditional books and frames traditionally centered on visual elements are also being diversified. Many book designs are also trying to use a variety of special materials, trying to use tactile and visual fusion. For example, some children's books are designed with sound and smell elements, and books designed for specific groups of people. This article mainly starts with the concept book design, and analyzes the influence of the concept design on the concept book form innovation. This paper analyzes the methods and advantages of tactile design from the aspects of material diversity and visual texture in printing process, as well as the emotional expression of tactile in book binding design, which inspires a broader book conceptual design. At the same time, this paper also tries to explore the use and value of tactile design in books, more reflecting indispensable tactile design of book binding design in the future.

II. BOOK BINDING AND TACTILE DESIGN

Modern book binding design not only pays attention to the practical function and beauty of books, but also more and more designers will take readers' reading experience into account. When it comes to book binding, many people may mistake it for book cover design, knowing that it includes not only the design of the cover, the spine, the back, and so on, but also the layout of the book's inner pages, the printing materials, and the binding process. To be exact, book binding design is a comprehensive project, which is the concept of the whole form of books.

A. Tactile Psychology and Tactile Form

Tactile is a physical concept at first, an experiential feeling generated by our body's direct contact with an object. Arnheim, a famous aesthetician, said of tactile sensation: "the art begins at any time and in any place by reacting to the experience of body perception. Body perception (tactile) can play an important role in the formation of visual ideational features and their artistic expression, and exposure to experience helps to confirm the objective shape we see." ¹ Tactile sense can fully mobilize people's sensory organs, transform information into more vivid visual images, and help people perceive more information. Such as the deaf and mute, although they lose their sense of hearing and vision, their touch is more sensitive than normal. They perceive the outside world by touching it. Skin contact is one of the earliest ways for infants to communicate with adults. Touch in infant stage is very important for shaping personality in the process of growing up. Tactile gratification is an important part of the development of children's mental health, and tactile sense is also one of the important ties between people to transmit emotion. Human body language also has tactile elements. When we are outside aggrieved and back home, a tight hug from our parents can make us feel warm; when a friend is anxious, touch the other person's shoulder with his hand, give encouragement, and so on. They are windows of intimacy brought by tactile sensation.

B. Formal Tactile in Concept Book Design

In the consumer age, the biggest difference between traditional books and electronic information reading is its touchability. In the process of reading, books create an emotional interaction with human psychology through human

¹ Rudolph Arnheim, *A New Theory of Artistic Psychology*, Beijing: Business Press, 1994, P. 341.

touch. With the rapid development of social economy, people pay more and more attention to the emotional factors and artistic values of the design works, not only the immediate function and form but also the emotional factors and the artistic value of the design works. Concept, as an innovative activity, is widely used in various design fields. To some extent, conceptual design seeks a "thought", a new mode of thinking. In the field of design, Robert McKing's understanding is that conceptual design is a kind of logical thinking, which superior to image thinking in that conceptual design is a process of exploration and creation, followed by a visual exchange of design ideas. Concept determines and influences the field of vision and future life in a way of thinking and phenomenon. Conceptual design is seldom restricted in the whole process of design, which can be free to imagine. Design thinking is free, through the new design concept in the future to show the uniqueness of conceptual design.

Concept book is a new form of book design in the art of book binding. Concept book design is not the negation and subversion of traditional book binding design, but "redesign" on this basis. It contains reasonable structural design and aesthetic sense of form, and conveys innovative design idea in the form of book. The design of concept books is relatively weaker than that of traditional books and conceptual books, and they cannot be produced in large quantities for the time being to allow more readers to read. But the idea of concept books and the comprehensive application of tactile design can provide a powerful reference for finding the direction of tactile design of books.



Fig. 1. "Green Salad" Conceptual Book Design Katherine a Glover.

Concept books not only show the creativity of book designers, but also serve as inspiration for future book binding design. It can even promote the research and development of new materials and manufacturing technology in "Fig. 1" the concept book is still designed in the form of a vegetable, and the reader can do it himself, close it up, and turn it over to complete the reading of the book. This way of reading increases the participation of readers. The concept book is

designed to combine soft mouth covers, acrylic acid, beads, ribbons, etc. The touch of different materials can give readers special tactile and visual feelings. Then different materials are reorganized and summarized to obtain a new sense of form and texture.

III. TACTILE REPRESENTATION IN BOOK BINDING DESIGN

Books are mainly through tactile and visual information transmission, the tactile performance of books is mainly through the material of books, texture, and different printing technology to reflect. Because of the integration of haptic design, book binding design has unique competitive power in the competition between modern commercial society and e-book.

A. Tactile Expression of Material

With the continuous progress of modern science and technology, materials are constantly emerging. Different materials bring great creative space to book binding design. The tactile texture of the material is "perception of the material's surface characteristics through hands and skin touch materials".² When we pick up an item, the contact of different materials through the skin of the hand brings different psychological feelings. For example, silk and cotton and linen bring a warm, smooth feeling, while metal, winding rattan give a solemn, cold psychological hint, also coldness in touch.

Paper is the most common and changeable material, and the charm of paper is that it is a silent language. Nowadays, the types of paper are also greatly enriched, and among them more familiar are coated paper, white card paper, Kraft paper, copying paper and so on. In addition, there are many types of special paper, designers can add different textures to create different texture according to their design needs. On the basis of these papers, the thickness, color, texture and weight of the paper can be changed by one or more changes, which can lead to more deformation of the paper.



Fig. 2. Lu Jin "Marx manuscript shadow truth".

In the design of Marx manuscript Shadow, the design of book binding master Lu Jingren is particularly detailed and ingenious. He uses a combination of several different materials,

² Jiang Xiangyun. Design Materials and Processing Technology. Beijing: Beijing Institute of Technology Press, 2003, p. 23.

such as kraft, paper, wood, metal, etc. to create a new book form. In particular, it is interesting the cover of the book uses different texture of wood and carefully carved out of the text design. When readers touch the leather cover to give people a delicate and warm tactile experience, and then the cover of the internal wooden book with a cowhide combined with the print, it is unique.

B. The Tactile Performance of Printing Process

In the Spring and Autumn period, the Book of the Chou Li examination said: "Heaven has beauty, earth has gas, material has beauty, and workers have coincidence. These four can then be good."³ This also fully reflects that good materials need the reasonable development and utilization of skilled craftsmen in order to make perfect works. The difference of printing technology not only brings us a lot of visual enjoyment, but also produces many different tactile experiences. The concave and convex printing process makes the material more three-dimensional tactile; the gilding process makes the bookbinding more gorgeous and gives readers a special tactile experience; cutting and laser engraving can deal with more elaborate and complex forms, giving the reader the most direct sense of touch and visual presentation.



Fig. 3. Book binding design of Zhu Yingchun.

Zhu Yingchun, a famous bookbinding designer, fully demonstrated his understanding of binding and printing techniques in his book the craftsman. In the design of the book cover, he directly used the woodcut process, the original text into a printing plate coated with ink through high pressure to print the text on the substrate. In the design of each craftsman, such as the weaver, the pattern of texture is chosen. After printing, sand can be used to polish people for a long time, whether in touch or vision. The craftsman's bookbinding is not as smooth as traditional books, but as a rough edge.

The designer cleverly uses the appropriate craft in the book to design the spirit of the craftsman that the book wants to express. The right design conveys not only the message of the text, but also the artistic quality, experience and concept that it should have, which give people a unique inner feeling.

C. Tactile Manifestations of Visual Texture

Modern book binding design, more is the use of materials, printing technology, structure and so on as the design concept, at the same time, texture as a unique expression method, the resulting tactile design is also an important source of book binding design ideas. The kinds of texture are all kinds, and the pictures, characters and decorative lines in the design of books are all important contents that make up the decoration of books. Conversely, these pictorial words can be regarded as a texture of a book, visually giving a very tactile design. This element is a texture that is presented through the visual effects of the design, rather than what we imagine to be physically palpable.

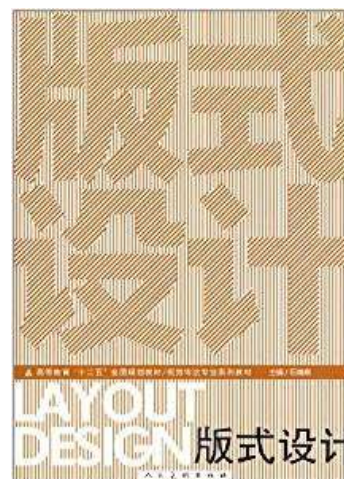


Fig. 4. Visual texture.

In "Fig. 4", we can see that these lines in different directions are combined into a book cover design with visual mechanism by combining the direction of written strokes. The mechanism of visual design, caused the readers want to stretch hand to touch feeling the psychological activity of the tactile texture, better effect of foil a books design also strengthens the communication between the readers and books.

IV. TACTILE EMOTION IN BOOK BINDING DESIGN

Book binding design pays attention to people's psychological sense and reading experience, through the

³ Xu Zhengying. *Chronicles of Zhou Li's Examination*. Beijing: Zhonghua Book Company Press, 2014.

material, texture and form in book binding. By incorporating emotion into it, we can arouse readers' inner tactile emotional experience and readers' resonance.

A. Emotional Experience of Touch

From the spread of characters, from the contract character to the oracle inscription of Shang Dynasty as the symbol carrier of information, people engraved the inscriptions on the oracle bones and bronzes in order to keep a record. The concave projection of these words on the carrier can be felt directly with the touch of the hand. This is one of the most primitive tactile experiences. Later on, the book made of bamboo wood in Shang Dynasty in China was called simple calf, which was recorded on wood or bamboo slices. Although the carrier of writing was changed from oracle bone to bronze into wood or bamboo slice, the tactile experience still existed. Subsequently, because of technological progress and innovation, there are tactile silk books and scrolls with high-quality and easy to carry. The materials of book binding are becoming more and more abundant with the diversification of record carrier.

And the invention of papermaking makes books more as a flexible emotional experience, the softness of paper through the reader's touch, convey to the reader's heart. Fingertip touch transmission highlights different emotional experiences. Softness, smoothness, warmth can give people peace of mind and ease, while sharp, thick and rough, to some extent will make people feel cold and pressure.

B. Emotional Expression of Tactile Design

The reading style of paper books is more emotional, so the design of book binding in the future will pay more attention to emotional design. Tactile design is an important means to embody the overall beauty. In the development of book binding design in the future, tactile sense must be an indispensable design element. The combination of different visual and tactile feelings is precisely because of the integration of tactile design, making the design of book binding unique competitive in the competition of modern commercial society and electronic books. It is precisely because of the different psychological feelings of tactile design that designers need to understand the whole content and thought of the book and the information that the author wants to express deeply at the beginning of the design. The introduction of tactile design in book binding design is not only for readers to touch, but also for beauty, and it is hoped that through this design, we can better strengthen the emotional communication between people and books. A good designer needs to bring this kind of emotional communication, can through their own way of thinking innovation, images, words and materials are properly linked together to reflect different emotional performance. It will bring different reading experience to readers, make books as an important carrier of inheriting Chinese culture and give full play to the unique cultural connotation and aesthetic value of books.

V. CONCLUSION

Under the impact of digital books, the design of traditional books is facing a huge dilemma. Integrating tactile design into book binding design is not only a breakthrough but also an innovation to create a more suitable reading experience for readers. In modern society, the emotional communication between people is gradually weakening, e-books bring us a fast reading "fast food" experience, but it is still an electronic product without temperature. But in books, we can find different ways to read. The sense of touch causes the communication between people and books, but the communication between people is infinite. As long as we constantly explore the diversified ways of book binding design, traditional books will also bloom in their own glory in the development of digital speeding.

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