Research and Application of Modern Illustration Language in Popular Science Books

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Abstract
With the development of the times, people's information processing no longer stays in the text. As a language medium, image information is widely used in the fields of paper media, advertising, multimedia and so on. Illustration is based on a visual language expression. With the spread of diversified information media, modern illustration has a variety of forms of expression, with the characteristics of the contemporary era, in line with the aesthetic needs of the public. At the same time, illustration has a certain artistic value in the form of expression. The information conveyed by the illustration can be very rich. Through the change of color and composition, the illustration can show different effects. The narrative and emotional expression of illustration are the two representative aspects of illustration as visual language. Through the use of different decoration techniques, highlight the story of the text materials used, more intuitive let readers feel the content of the story to be narrated, deepen the impression of readers. This paper will make a reasonable analysis of the visual language represented by illustration, and make a reasonable explanation combined with the graduation project “identification Atlas of endangered wild animals in China”. Based on the current development status of popular science books, the application of illustration in popular science books will bring a different visual experience for popular science books and enrich the popular science information in books.

Keywords
Illustration; Visual language; Narrative; Emotional expression; Popular science books; Interactivity.

1. Overview of Modern Illustration
1.1. Concept of Illustration
The origin of illustration can be traced back to the primitive society People used illustration on pottery vessels and cave murals. These illustrations not only contain people's thoughts and beliefs at that time, but also record information instead of words that have not yet appeared. Illustration keeps up with the pace of the times. In different times, illustration has its form of expression that conforms to the development of the times. Different from decorative pictures, illustration usually has its own message to convey, which is a concise picture of things. In the new era, illustration, relying on different media, is born in the imagination of the creator. It is precisely because of the unique artistic creation of the creator that illustration is loved and sought after by people.1.2 forms of modern illustration With the advent of the information age, image display can be seen everywhere in our daily life. The popularity of images in the "image reading era" has become the norm. The emerging products brought by science and technology not only bring convenience to society, but also bring various forms of media carrier to illustration.

(1) The painting form of illustration. On the basis of retaining the traditional hand drawing, the creators can freely display their creative personality. This kind of illustration focuses on the
expression of the creator's subjective thought. Through the understanding of the theme, the Creator shows an ideal picture effect and artistic atmosphere in the composition and modeling.

(2) The realistic form of illustration. This form of expression is based on the real description of the appearance, shape and color of things, which is less different from the traditional painting. Nowadays, the realistic expression of modern illustration is more common. With the support of technical equipment, the digital painting using computer makes good use of the painting software, plug-ins and other functions, and uses the pressure sensitive pen to operate the painting input to the screen. This form of expression can imitate the real hand-painted strokes and materials, so as to achieve realistic effect.

(3) The comprehensive material form of illustration. This form of illustration is not a traditional painting style, but a combination of different materials, such as cloth, metal, color card paper, linen and so on. With the development of diversification, comprehensive material performance in the painting, paper art, patchwork and other works. This kind of creative works highlights the perfect combination of materials and art, more like decorative paintings, displayed in modern life.

(4) The flat form of illustration. In the era of information explosion, flat design makes it easier for people to process the received information and reduce the visual cognitive impairment. Flat illustration is widely used in many websites, and it is widely used in propaganda and promotion. In the pursuit of simple and elegant graphics and colors, bright colors, but also the use of irregular geometry patchwork, in the color, proportion of collocation, showing the contrast of light and shade in the plane and highlighting the main effect.

2. Language Expression of Illustration

2.1. Visual Expression of Illustration Language

The language of illustration is embodied in the creative emotion expressed by the creator himself, combining with the basic elements, transforming the subjective consciousness of self into the picture. Illustration language can be abstract or concrete. The concrete form of illustration is the form of realistic illustration, which pursues the real expression in color, shape and material. The modern style of illustration is mostly realistic, which reflects the author's superb painting skills. It is also the difference between the realistic illustration and the photo to integrate the thought into the painting, while retaining certain traces of traditional painting. Alexander Roth, a famous American illustrator, paints with his own imagination. When constructing scenes and characters, he creates an environment and highlights the expression of characters, which makes them have strong emotional color and strong narrative. Nowadays, the era of image has become a general trend. In the public's cognition, the design and use of image is to convey the information easily received by the public. At the same time, under the commercial operation, image publicity can also achieve good results. Therefore, the graduation project chooses to express the information objects in popular science books by hand-painted illustration, which conforms to the trend of modern development. Modern illustration has its own characteristics of the times. At the same time, creators will choose themes in many aspects. The most common illustration content is selected from the public life, which makes the works in the illustration closely related to the public and produce resonance and intimacy, so as to transfer information to the public. In addition, the graphic effect and form of expression of the illustration will bring strong visual impact and impressive.

2.2. Narrative of Illustration Language

The narrative of illustration is usually the visual expression of the story itself presented by the creator. Multiple elements are usually set in the picture to construct the framework for the story. The theme of the story depends on the relationship between the elements in the picture. The
relevance of the elements in the picture is also related to the strength and weakness of the narrative. If the elements are sufficient, the stronger the narrative performance of the picture, and if the elements are not sufficient, the weaker the narrative performance of the picture. Illustration transforms the information in the text into the picture, and the most common narrative way of the theme in the picture is symbol. This kind of embellishment can act as a variety of elements in the plot, and can represent the psychological characteristics of the creator through these symbolic symbols. Realistic painting and abstract painting have narrative performance. The concrete realistic illustration uses the realistic expression technique to describe the narrative part intuitively. Generally, this kind of illustration is used in popular science picture books. The audience group is children. They have obvious cognition of this intuitive and clear content. The content in picture books is clearly narrated, and it is easy to convey the information expressed in illustrations to children. This kind of expression carries the meaning in form, simplifies the complicated text information, and shows it in concise and vivid pictures, so as to achieve the purpose of conveying the information in the book.

2.3. Emotional Expression in Illustration

As a visual art form, illustration design can transform text information and express inner feelings. The emotional expression in illustration works is closely related to the creator's sensory world. In the creation of illustration, the use of color, composition, lightness, purity, as well as the use of symbols, exaggeration and other decorative methods, the combination of different elements, to express the emotional language of the creator's spiritual world. Emotion is the soul of illustration art. The emotional output of illustration works will make the appreciator have the same emotional consciousness as the creator. The emotion and thought between the two will be combined and added to the illustration works, which will produce resonance and establish a consciousness bridge between the creator and the appreciator. In the graduation project, the illustration of wild animals emphasizes the anthropomorphism of animals, combines with the habitat of the species, and selects the local characteristics as the anthropomorphic performance of the species. It is usually based on the regional characteristics of ethnic costumes. In illustration drawing, it expresses the action and expression characteristics of animals, imitates the expression and emotion of human beings, wants to convey the commonness between animals and human beings, deepen the readers’ understanding of animals, and achieve the correct understanding of wild animals and the awareness of all things as neighbors.

![Figure 1. An example of the color manuscript of the endangered Leopard](image-url)
3. Illustration in Modern Popular Science Books

3.1. Forms of Illustration in Modern Popular Science Books

In modern popular science books, most of them are expressed by the combination of pictures and texts. The combination of graphics and text can clearly express the target object in the text, and also can accurately convey the picture the author wants to present to the readers. In modern commercial society, illustration involves more and more fields. Reasonable combination of text content, clear, concise and accurate transmission of information in the text, in the form of pictures, children’s acceptance is higher and higher. Exquisite illustration not only has a strong visual impact, but also can express information, stimulate readers’ interest, attract children's attention and guide children to read. Compared with the traditional form of real pictures, the form of illustration gives popular science books a different charm. Books with more interesting contents and vivid pictures are more likely to attract children. The content of the story illustration describes the plot of the target object; the illustration is also decorative, which can be adjusted properly in the text layout to ease the dry printing of the text and make it more full and vivid; the illustration can also become an independent individual illustration book, which can be bound into a volume, and as a collection of paintings, the style is exquisite and can catch the eye.

3.2. The Role of Illustration in Popular Science Books

Illustrations make the information of popular science books interesting and highly accepted by the public. Popular science books often make children less interested in boring text information content, and the narrative and emotional expression of illustration can simplify the text information, and finally present to children is exquisite and beautiful, accurate and concise, interesting picture, strong information dissemination ability, increase the attraction of books. The graduation project "identification Atlas of endangered wild animals in China" is a popular science book designed to publicize the protection of wild animals. The selection of endangered wild animals is based on the animals recorded in the protection list of "Red Book of wild animals in China". According to the endangered degree of animals, 50 animals with the highest endangered degree are selected. To draw animal morphology by classification and highlight the characteristics of animals. This book collects endangered wild animals distributed in various regions of China. In the process of drawing animals, it appropriately combines the animals themselves with the local characteristics, closely links the concept of "human and all things are homologous", and expresses the anthropomorphic effect of animals.

Figure 2. Cover and inside page design

3.3. Diversity of Illustrations in Popular Science Books

The combination of picture and text. As the most common form of expression in today’s society, the combination of illustration and text is a common way of design in popular science books for
the commercial value and the characteristics of illustration. Text to introduce the basic information of the target object. Hand painted illustration style. Graduation project The illustration in the identification Atlas of endangered wild animals in China starts with hand drawn line draft, which uses anthropomorphic expression to depict the basic characteristics of animals. The habitat of animals is used as the scene depiction in the illustration, and the regional characteristics of the region where the animals are located are reflected in the animals. The colors of illustrations should be high purity (as shown in Figure 1-2). The color of the theme object is not painted according to the real color, but the color with high purity is selected. The overall color of the picture is bright, and the main object and the background are gradually changed. High purity color gives us a lively and dynamic, strong color contrast, easy to attract the public in the vision.

4. Conclusion

The topic and graduation project of this paper is about the publicity and protection of endangered wild animals. The application of wildlife protection and publicity in popular science books is more common in the market. When reading popular science knowledge, monotonous words and pictures are inevitable to dissuade. In order to achieve the role of publicity and popularization of popular science books, we should consider making changes in ourselves. The purpose of the graduation project is to change the public’s prejudice against popular science books, attract children with new illustration style and bright colors, guide children to read, and let the information in the book be naturally conveyed. Popular science illustration has a unique artistic expression language. It aims at popularizing scientific knowledge and advocating scientific methods, and is guided by artistic aesthetics. It is an organic combination of "science and technology" and "art". In the era of new media, the forms of expression and media carrier of popular science illustration are constantly bringing forth new ideas. The creation of popular science illustration is no longer limited to traditional forms, and gradually presents a diversified development trend. At this stage, it is of great significance to strengthen the visual perception and scientific guidance of popular science illustration, integrate the emerging media language and diverse performance media, and form a more acceptable popular science expression form in popular culture.

References