Research on the Application of Beijing Opera Character Modeling in Children's Picture Books

Guangyu Zhou[1], Qiangqiang Fan [2] and Youggu Kim [3],*

[1]   Northeastern University Postgraduate students; zgy1127578395@163.com
[2]   Northeastern University; Associate professor; fanqq@mail.neu.edu.cn
[3]   Jeonbuk National University; Teaching Assistant; nine221@nate.com
*   Correspondence

Abstract: Children's understanding and inheritance of traditional Chinese culture and innovation of Chinese children's picture book art form are of great significance to carry forward traditional culture and strengthen confidence in Chinese culture. As an excellent traditional Chinese opera art, Beijing Opera has an indispensable cultural status. The purpose of this study was to determine cognitive needs of children in view of simplified display form of children's picture books in China through decomposition, extraction, reconstruction, and integration of the Peking Opera character modeling elements, the use of modern design concepts, and the combination of artistic characteristics of picture books. It explored new ideas for the development of traditional culture, proposed application principles, and suggested strategies for the form innovation of children's picture books to make Beijing Opera enter children's life from the traditional stage.

1. Introduction

This paper uses literature analysis to discuss the creation method and expression form of Peking Opera character modeling applied in children's picture books, and sorts out the facial makeup culture and costume characteristics of Peking Opera characters. At the same time, it further analyzes the psychological characteristics of the target group of children, changes the current rigid application mode of traditional picture books for children, and seeks the most suitable form of artistic expression according to children's aesthetic cognition, consciousness ability and educational acceptance. By case analysis, this paper studies the interactive display forms and innovative contents of the three excellent picture books by analyzing the Group of Heroes, Beijing Opera Cat · Changbai Slope, and Beijing Opera for Children .The interactive presentation forms and innovative contents of the three picture books are studied, which are summarized from the aspects of education, intuition and interest, and the point of view of how to skillfully apply the elements of Peking Opera characters to the carrier of picture books with children as the audience is expounded. From the theoretical level, it is the purpose of this paper to put forward the design methodology of Peking Opera character modeling in children's picture books.

2. Research on Children's Picture Books and the Limitations

The term "picture book" was introduced by Japanese and developed gradually in China after the May 4th Movement in the early 20th century. In recent years, with the rapid development of the economic and cultural industry, more attention is paid to the cultural education of children. Therefore, the number of painted books for children in our country is growing gradually. There are also a number of picture books with Chinese cultural characteristics on the market. At present, the mainstream of children's picture books can be divided into the following categories: science picture books, story picture books, animation adaptations of ancient poems, etc. With the opening of the market of traditional Chinese culture, many painters choose traditional culture as their

creative ideas, and there are many picture books with excellent themes, such as These Are the 24 Solar Terms, New Year's Flavor, and The Story of the Twelve Chinese Zodiac. However, a large number of imitations and copies also emerge in endlessly. Therefore, by investigating the sales situation of picture books on Dangdang (an online book shopping mall in China, which accounts for more than 50% of the online book market) and taking traditional cultural themes as the research direction, the author takes the annual bestselling representative picture books on Dangdang as the main data, and sorts out the following questions, as shown in Table 1.

Table 1. Current situation of domestic picture books

Theme	Quantity	Modality	Summarize
The 24 solar terms	2696	"These are the 24 solar Terms" Gao Chunxiang, Shao Min	· In the choice of subject matter, it is easy to be the same. ·The expression of content is too programmatic, and the concept output is not interesting. In the form of expression, most of them still use paper media and lack the combination with new forms.
Chinese Spring Festival	2959	· "New Year's Eve" · Bao Dongni, YuHongyan	
Twelve chinese zodiac signs	3194	· "The story of the Chinese Zodiac" · Laima	

Nowadays, while looking for diversified content belonging to the Chinese nation, picture book creators aim to promote the national culture, establish the national image of Chinese children's picture books, and focus on the creation of topics that enrich traditional culture.At the same time, it seeks a breakthrough in the form of picture book display. The author analyzes three cases of picture books at home and abroad to provide new inspirations for the creators, as shown in Table 2. Explore the characteristics of different media platforms,

combine the current popular digital interactive forms, or transform plane picture books into three-dimensional display space, expand children's imagination space for stories, optimize children's situational experience.

Table 2. Innovative picture book cases at home and abroad

Title	Author	Modality	Introduce
"Little Bear AR Interactive Picture Book Series"	'Yangshu' Culture Company		·Use panoramic AR effect to enhance three-dimensional interactive reading experience. ·Character design cartoon interest, strong story.
"Montessori Puzzle Book"	My firstbook Brand		·Set up the plot of the game, fun to improve children's cognitive ability. ·Flannelette collage to stimulate children's hands-on ability.
"This Is Not a Book"	[France] Jean Julien		·Use visual form. ·Convert a plane into a stereo image ·Implies the principle of perspective.

3. AN Analysis of the language of Beijing opera Characters Modeling

3.1 Characteristics of the Masks

Beijing opera masks, one of the most prominent parts of Beijing opera character modeling, is a kind of facial make-up unique in the opera. In stage performances, the make-up showcases the unique beauty of Beijing opera. From the perspective of dramatic art, the Beijing opera masks not only represent the performers' or characters' personalities but also are created in a strict procedure. The facial make-up can be used to alter the performer's appearance or change the appearance of the face entirely , thus making the performer more resemble the role he plays. It enables the audience to clarify such visual information to know the characters' personalities, age, and their nature while watching the Beijing opera. In terms of visual art, Beijing opera masks, which are composed of dots, lines, and surfaces, feature a lot of decorations. Based on the characters' personalities, different styles of characters are presented through the bold use of decorations of patterns and lines.

3.2 Characteristics of the Costumes

From the design of the patterns to the choice of colors, the Beijing opera costumes not only have aesthetic appeal but also contain unique symbolic meanings, reflecting traditional Chinese cultural tastes. The costumes of Beijing opera are also known as Xing Tou and their styles are divided into Dayi, Eryi, Sanyi, and Yunjian. Besides, the costumes of Beijing opera are colorful and unique, giving the audience a delightful visual experience. However, a set of rules exists for the matching of Beijing opera costumes.

4. Application Necessity

On the one hand is the embarrassing situation of the Peking Opera industry. With the continuous development of society and economy, various forms of entertainment emerge in an endless stream, and the performance form and content of Peking Opera seem to keep up with the "trend". The audience of Peking Opera is basically older, mostly middle-aged and elderly people, and the audience is gradually shrinking, and young people and children have less understanding of Peking Opera. The bright culture of Peking Opera seems to be coming to an end.

On the other hand, the slow development of the children's picture book industry in China. In the decades after the founding of the People's Republic of China, children's picture books had a prosperous development process, but it was shelved due to the later Cultural Revolution and experienced a long development blank period. As a result, the picture book culture in other countries developed rapidly, and the original strength of picture books in China was relatively weak. How to create children's picture books in Chinese native style is a question that designers need to discuss

5. Principles of the Application of Beijing Opera Character Modelling in Children's Picture Books

5.1 Educational meaning

As a medium, picture books create a story world for children to imagine, who build their inner worlds based on their interpretations and the content presented in the pictures. Furthermore, picture books combine cultural connotations with children's psychological perceptions to present content appropriate for children through drawing techniques, thus developing children's imagination, understanding, and thinking. As is shown in Figure 1, the Beijing opera picture book, Qun Ying Hui (Gathering of Heroes), is based on a historical story, in which the characters are dressed up in Beijing opera costumes, and the Beijing opera stage is replaced with real scenes. Alongside the pictures, several words are there for an explanation, so that children can clearly understand the historical story. The picture book also contains a clip of the singing of Huang Gai from the opera, and the masks of Huang Gai and Cao Cao as well as an explanation of Zhuge Liang's costume is demonstrated on the right side of the picture book. It enables children to further develop their knowledge, interest, and appreciation of the culture of Beijing opera, as well as enriches their knowledge of literature.
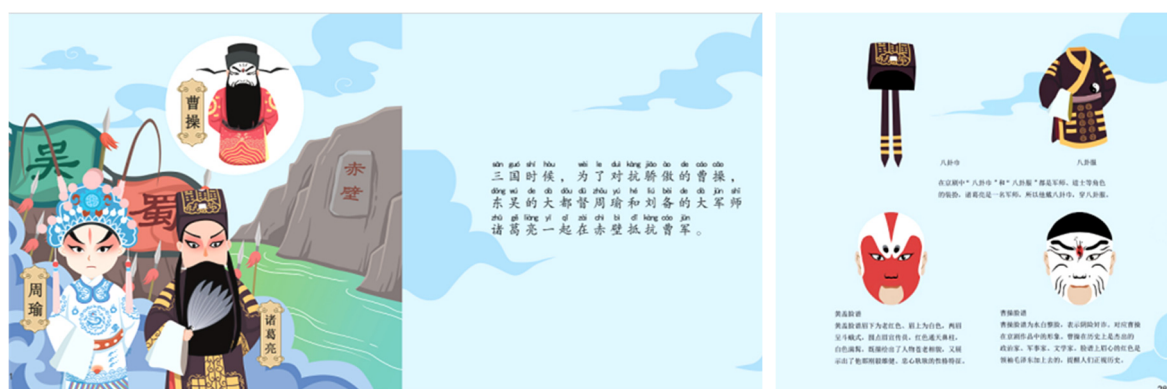
Figure 1. Beijing opera picture book- Qun Ying Hui (Gathering of Heroes)

5.2 Straightforward presentation

When applying elements of Beijing opera character modeling to children's picture books, it is important to stand on a child's perspective. Unlike adults, since children are naive and innocent, they are guided by intuitive thinking to draw and tend to straightforwardly perceive things. Therefore, we should pay attention to the cognitive characteristics of children's minds when using the elements of Beijing opera characters, grasp the scope of children's understanding, as well as consider children's acceptability. Then, we can extract, simplify and generalize the elements of Beijing opera, ensuring that children can understand the picture book and that the characters can be presented more straightforward in the picture book.

5.3 Interesting interaction

Due to their young age, children are not limited in their thinking by their growth experience, so they have unrestrained thinking, fantasizing about everything, and full of curiosity and desire to explore everything in the world. Therefore, we need to present the elements of Beijing opera in a lively and interesting way in children's picture books. As shown in Figure 2, the personalization picture book "Beijing Opera Cat · Changbai Po" takes the cat as the main carrier and cleverly uses the pattern distribution characteristics of the cat's face combined with the elements of Beijing Opera facial makeup to create the image of "Beijing Opera cat".Based on a classic Beijing opera, the story is not only close to children's real-life but also has vivid characters with interesting behaviors, presenting the story of a Beijing opera in the language of picture books.

Figure 2. The Beijing opera Cat--Changbai Po

5.4 Digital interaction design

In the form of picture books, we can try to break through the communication in two-dimensional space, create situational experience environment based on children's sense of experience, design from the perspective of children's vision, hearing, touch and experience, and use digital interactive technology to stimulate children's reading enthusiasm and interactive participation.As shown in Figure 3, the picture book exhibition Peking Opera for Children is displayed in a three-dimensional manner. The picture book is combined with the exhibition to grasp the characteristics of children's cognition of images.According to the basic knowledge of Peking Opera, refine and concentrate the four characters of Sheng, Dan, Jing and Chou. A variety of childlike imagery patterns are used to interpret the terms of Peking Opera, and elements such as Peking Opera characters' costumes, sculptural headwear and props are displayed in real objects. Through the interaction between people and the exhibition real props, traditional written communication is broken through.And a rich Peking Opera stage is displayed for children in a three-dimensional form, helping children readers to have a clearer understanding of Peking Opera culture. Enlarge, transform and open this unique picture book, guide the children who have just begun to know the opera culture of Peking Opera, and stimulate their desire to explore the world of Peking Opera while enjoying the fun.

Figure 3. The Beijing opera for Children, Exhibition

5.5 Digital interaction design

The development of information technology has innovated the interactive experience form of virtual reality, providing a new path for the development of picture books. By adding new modes, digital technology enriches the narrative function of children's picture books and breaks through the linear structure of paper media. The creator needs to combine the character modeling of Peking Opera with the picture book according to the age level of the children. On the one hand, it can match the application of AR augmented reality technology and the story line guidance of the picture book. Three-dimensional modeling, video demonstration and sound effects are provided to enable children to experience the charm of Peking Opera through interactive devices. On the other hand, picture books can be combined with general apps. By setting two-dimensional code and wechat mini program in picture books, the APP can jump to related audio interface in electronic devices after scanning the code.

6. Conclusions

Taking children as the target audience, picture books as the starting point, and Beijing opera culture as the innovative point, this paper explores the integration of the Beijing opera into children's picture books. With research on the traditional costumes, characteristics, and facial makeup of the Beijing opera characters mentioned previously, this paper provides enlightenment for adopting the Beijing opera elements in children's picture books. Children's picture books should break away from the traditional flat way of media communication and try to use a variety of interactive forms to improve their contextual settings. From the perspectives of educational meaning, straightforward presentation, and interesting interaction, this paper proposes the principles of applying the Beijing opera character modeling to children's picture books, aiming at providing inspirations for China's picture book creation, promoting and reviving the Beijing opera culture.

Conflicts of Interest: The authors declare no conflict of interest.

References

[1] Z. Cuixia, L. Li, "Peking Opera schema of color analysis," Journal of beauty and age, vol. 10, pp. 74-75, 2010. doi: http://dx.doi.org/10.16129/j.cnki.mysdx.2010.10.022

[2] Z. Tan, "Peking Opera mask color composition in the application of modern design," Journal of art and design, vol. 7, pp. 47-48,2013, doi: http://dx.doi.org/10.16824/j.cnki.issn10082832.2013.07.008

[3] X. H. Wang, "Stylized Dressing of Traditional Peking Opera Costumes," Drama Literature, vol. 6, pp. 67, 2003. doi:http://dx.doi.org/10.14043/j.cnki.xjwx.2003.06.019

[4] X. H. Dai, "Based on the cognition of reading children's picture books design," Journal of packaging engineering, vol. 37, pp. 150-154, 2016. doi: http://dx.doi.org/10.19554/j.cnki.1001-3563.2016.02.036

[5] Y Xu, "Image narrative in multi-dimensional Space -- A study of narrative performance in children's picture books," Decoration, vol. 5, pp. 131-132, 2014. doi: http://dx.doi.org/10.16272/j.cnki.cn11-1392/j.2014.05.045

[6] W. Li and J. Wang, "The influence of reading media on story generation of 5 ~ 6 years old Children: A Comparative study of digital reading and picture book reading," Electrochemical education research, vol. 38, pp. 95-110, 2017. doi: http://dx.doi.org/10.13811/j.cnki.eer.2017.06.015

[7] L. Jin, "Exploring the influence of digital media development on children's picture book reading," Chinese newspaper industry, Vol. 4, pp. 32-34, 2021. doi: http://dx.doi.org/10.13854/j.cnki.cni.2021.04.015.

[8] C, Gao, "Function and Trend Analysis of Children's picture book Design in Digital Age," Technology and the press, vol. 4, pp. 56-59, 2022. doi: http://dx.doi.org/10.16510/j.cnki.kjycb.20220420.016

[9] S. D. Weir, "Augmented reality children's books advantage analysis and design strategies to build," Science and technology and publishing, vol. 2, pp. 75-80, 2017, doi: http://dx.doi.org/10.16510/j.cnki.kjycb.2017.02.018

[10] Y. Han, "What limits the originality of Local Picture Books," Guangming Daily, vol. 13, pp. 7-8, 2020. doi: http://dx.doi.org/10.28273/n.cnki.ngmrb.2020.003500

[11] S. Q. He and J. Y. Qin, "From VR/AR to Metaverse: Interactive Design of Immersive children's picture books for Alpha Generation," Library construction, vol. 5, pp. 66-72, 2022. doi: http://dx.doi.org/10.19764/j.cnki.tsgjs.20220169

[12] X. J. Li and Y. M. Zhang, "Children of AR from the cognitive mechanism of children's books published study," Journal of published research, vol. 12, pp. 46-62, 2018. doi: http://dx.doi.org/10.19393/j.cnki.cn11-1537/g2.2018.12.010