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PICTURE BOOK DESIGN STRATEGY FOR CHILDREN'S COGNITIVE DEVELOPMENT: STARTING FROM COLOR AND COMPOSITION

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Based on children's cognitive characteristics and aesthetic preferences, this study summarizes characteristics of children's visual cognitive through literature and case analysis, and tries to construct a set of picture book composition and color application methods based on children's cognitive development characteristics. Secondly, in order to verify the feasibility of the study, the paper combines quantitative analysis to evaluate children's cognitive performance on color and composition in picture books, and finally provides scientific basis and innovative ideas for creating picture books that not only meet the needs of children's psychological development, but also have high artistic value.

Key words: *Children's Picture Book Design, Composition Analysis, Color Research, Cognition of Children, Children's Educational Materials*

INTRODUCTION

In modern educational theory and practice, children's picture books are not only regarded as an important part of early reading materials, but also considered as an effective tool for children's psychological development and cognitive ability cultivation. With the in-depth research of psychology and visual arts, how to use picture books as an educational medium to promote children's all-round development has become the focus of both academic and practical fields. Especially in the design of children's picture books, different color combinations can trigger different emotional reactions of children, and affecting their cognitive development. On the other hand, composition guides children's visual focus through the organic combination of visual elements, helps them understand the story plot, and develops spatial sense and logical thinking ability [1].

PURPOSE

This study explores the methods of the composition and color application in the picture book design for children based on the analysis of children's cognitive development characteristics. In view of the characteristics of children's visual sensitivity and cognitive ability in the growth process, this study focuses on how to promote children's visual recognition ability, emotional experience and cognitive development through the visual elements (composition and color) in picture books. Secondly, combining with the characteristics of children's psychological



development, the methods of color application and composition design are analyzed, so as to attract children's attention and reading interest, and promote children's understanding ability. In addition, considering the differences in cognitive and psychological development among children of different ages, this study adjusted the design of picture books according to the characteristics of children's age, and achieve the best educational effect and aesthetic experience.

RESULTS AND DISCUSSION

This study fully considers the developmental characteristics of children's psychology and visual cognition, and analyzes how to meet children's cognitive needs and promote their emotional development through the visual design of picture books. Some studies indicate that proper composition and color use have a significant effect on attracting children's attention, promoting reading interest, and supporting cognitive and emotional development. Piaget, a Swiss psychologist, divides children's cognitive development into several stages, among which 2-7 years old is the preoperational period, which is also the key period for the development of children's visual perception ability [2]. The development of visual cognition of objects in children aged 2-7 years increases rapidly. Taking into account the common characteristics of children at this stage, they can not only effectively track object information, but also recognize and name colors, and begin to form a preference for specific colors. In terms of composition cognition, children aged 2 to 3 years can already recognize simple figures and patterns, and try to draw simple figures. Along with the growth of child's age, their pattern recognition ability improved significantly and they were able to recognize and classify multiple complex patterns. By 5 to 7 years of age, children can not only understand the relationships between figures, but also recognize complex figures and patterns [3].

Combining the above characteristics and considering that children's understanding of images mainly depends on visual impressions that are visualized, the design of picture books should use combinations of bright and contrasting color ,and highlight story themes and characters through simplified composition to promote children's visual recognition and emotional experience. Considering the continuous development of children's tracking ability and spatial ability, the result is the improvement of understanding ability. Therefore, picture books also need to use the color atmosphere that matches the theme mood and the composition design of the guided visual path, so as to increase the fault tolerance of the design through the guided method.

In addition, based on the quantitative analysis method, this study used a 5-point scale to evaluate children's cognitive performance on the aspects of color and composition in picture books, as shown in Table 1. The results show that children's understanding and emotional resonance of picture book content are closely related to the use of color and composition method in picture book design."Color vividness, color matching to theme emotion" received relatively high ratings in the 3-5 year age group, suggesting that children in this age group may have a strong response to bright colors and emotional expressions. Bright colors and colors that match the mood of the subject can directly promote their concentration and emotional arousal, which in turn better draws them into the story situation and stimulates imagination and creativity. Secondly, "Color contrast and composition contrast intensity"



received high scores in all age groups, which indicates that children are generally more sensitive to visual elements with high contrast. Finally, the higher scores of "guided visual path salience" in the 3-5 and 5-7 age groups indicate that children's visual discrimination and cognitive complexity increase with age, they become more sensitive to details and subtle changes in color, and are better able to follow the visual guidance in picture books. Therefore, designers should consider not only the attractiveness of color but also the complexity of composition when creating picture books to meet children's constantly developing visual and cognitive needs.

Table 1

Children's Cognitive Performance Ratings of Picture Book Color and Composition

Age	2-3	3-5	5-7
The vividness of color	3.33	4.33	3.67
The contrast of colors	4.67	4.00	4.02
The simplicity of color matching	4.33	3.33	4.02
Color and theme mood matching degree	3.67	4.33	3.67
Simple and clear layout	4.00	3.67	3.67
Contrast intensity of composition	3.67	4.01	4.67
Guided visual path conspicuity	3.33	4.03	4.02

CONCLUSIONS

In the creation process of children's picture books, designers need to conduct in-depth exploration of children's psychological needs, accurately grasp the law of children's thinking development and its cognitive characteristics, so as to flexibly use various composition and color skills to create works that children love. In terms of composition, attention should be paid to simple composition, strong contrast composition and guided visual path composition to simplify children's dyslexia and enrich visual experience. In terms of color selection, it focuses on the use of bright and high contrast colors, as well as the color atmosphere that matches the theme mood, in order to create a picture that is both in line with children's aesthetics and full of imagination. Through the application of these methods, designers can ensure that the picture books can not only meet the reading needs of children at different ages, but also have artistic value and educational significance.

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