

Research on Color Design of Children's Picture Books with Marine Themes from the Perspective of Reading Field

Wenjun Tian *

College of Art and Design, Wuhan Textile University, Wuhan, Hubei, China

* Corresponding author Email: 2685464975@qq.com

Abstract: This study focuses on the color design of children's picture books with marine themes from the perspective of reading. It comprehensively employs theoretical research methods, color analysis methods, and case analysis methods to conduct the discussion. The research finds that color design is of vital importance in children's picture books. Children have unique patterns in perceiving colors. High saturation colors, although easy to attract their attention, may also cause visual fatigue. In children's picture books with marine themes, color design follows the principles of simplicity and clarity, ingenious application, and reasonable combination. It is applied through ideas such as constructing color layers, rationally using blank spaces, and coordinating color combinations with emotional expressions. Through the analysis of typical picture books, it is summarized that color design plays an important role in highlighting the subject, creating atmosphere, and conveying emotions.

Keywords: Ocean Theme; Color Design; Children's Reading.

1. Introduction

Picture books are children's books that use images as the main source and text as a supplement, complementing each other to tell stories. In the study of ocean themed picture books, this article starts from color psychology, children's cognitive characteristics, and perceptual characteristics, and deeply analyzes the color design of children's picture books.

2. Theory of Color Design and Reading Perspective in Children's Picture Books



Figure 1. Let's go see the sea

Color design is a comprehensive art that plays a crucial role in children's picture books. The three elements of color are hue, brightness, and saturation. Hue refers to the appearance of colors, such as red, orange, yellow, green, cyan, blue, purple, etc. Each hue can bring a unique visual experience to people. Brightness refers to the brightness of a color, and high brightness colors such as white, light yellow, etc. often give people a relaxed and bright feeling (Figure 1); Low brightness colors such as black, dark gray, etc. will create a calm and mysterious atmosphere (Figure 2). Purity refers to the purity or vividness of colors. High saturation colors are bright and eye-catching, and can strongly attract children's attention,

while low saturation colors are relatively soft. Color theory focuses on color harmony, with its core being the construction of the matching relationship between different colors, such as the use of complementary colors, similar colors, and contrasting colors, all of which are important ways to achieve color harmony.[1]



Figure 2. Sleepy pajamas for insomnia

The reading horizon is a range of perspectives formed by the knowledge background, cognitive structure, and reading expectations that readers possess during the reading process. So for children's picture book reading, the influence of reading perspective cannot be ignored. Children's knowledge reserves are relatively limited, and when they read picture books, they will understand the content based on their existing cognitive experience and level. For example, a child who has never seen the ocean before may combine the limited images they have seen in books or on television with the ocean scenes depicted in the ocean themed picture book to construct their understanding of the ocean.

Moreover, the reading perspective also influences children's reading expectations. If children have previously read some picture books full of fantasy colors and plot twists and turns, they may expect equally exciting stories and

imaginative images when reading new picture books. This kind of reading expectation will affect their acceptance of picture book content and color design. When the color design of picture books matches children's reading perspective, it can help them better understand the story and enhance their emotional experience. For example, in ocean themed picture books, using mysterious colors such as contrasting low brightness deep blue and green with brighter orange and yellow to depict underwater scenes can better meet children's expectations for underwater stories, stimulate their reading interest, and allow them to immerse themselves more deeply in the world created by the picture book (Figures 3).

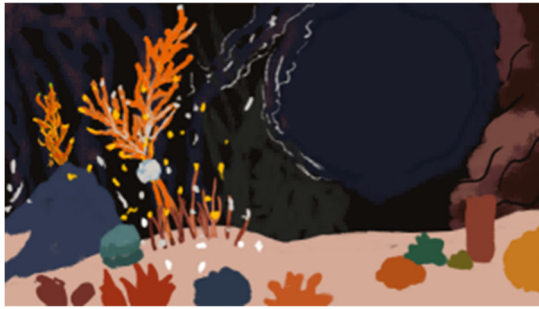


Figure 3. Self drawn by the author

The design of children's picture books should be based on the physical and mental health of children, effectively explore the healing function of colors, choose color expressions that are suitable for the content, and have exquisite and scientific ideas for the combination of color brightness, purity, etc. Only then can picture books fully play their role in deepening life education, enhancing self healing ability, and promoting respect and awe for life.[2]

3. Children's Perception Characteristics of Color in Reading Perspective

The visual system of children is in a rapid developmental stage during the early stages of growth, and their perception of color has unique patterns. Research has shown that children in the early childhood stage have a strong response to high saturation, bright and vibrant colors. Compared to soft and dull tones, bright colors are more likely to attract their attention. From a psychological perspective, this is because children's brains are more sensitive to strong stimuli in the early stages, and bright colors can activate the visual processing areas of the brain, triggering excitement and encouraging children to actively focus on the image. In the context of ocean themed picture books, vivid marine creatures such as orange clownfish and bright pink octopuses can instantly capture children's attention and stimulate their interest in exploring ocean stories (Figure 4).



Figure 4. Self drawn by the author

However, prolonged exposure to overly bright color environments can easily lead to visual fatigue and a shift in attention in children. When the color saturation of picture book pages is extremely high and lacks variation, children's eyes need to constantly adjust to adapt to strong stimuli, and physiological fatigue quickly spreads to the psychological level. For example, if several consecutive pages are filled with large areas of high saturation deep blue and bright green depicting ocean waves and seaweed, even if there are interesting plot points, children may lose interest in the content of the picture book due to eye discomfort, and their attention begins to shift to other things. This visual fatigue not only affects current picture book reading, but in the long run, it may also weaken children's enthusiasm for reading ocean themed picture books and hinder the development of reading habits (Figures 5).



Figure 5. Self drawn by the author

4. Application Analysis of Color Design in Ocean Themed Children's Picture Books from A Reading Perspective

4.1. Principles of Color Design Application

4.1.1. Principle of Simplicity and Easy Understanding

Children's cognitive abilities are still in the developmental stage and their ability to understand complex information is limited. In ocean themed picture books, color design should be close to their cognitive level. For example, using a large area of pure blue to represent the ocean can help young children quickly establish a connection between blue and the ocean, without the need for complex explanations to understand the main subject of the picture. When depicting common marine organisms, choose bright and single colors, such as fish with different bright colors, to facilitate children's recognition and memory, laying the foundation for reading (Figure 6).

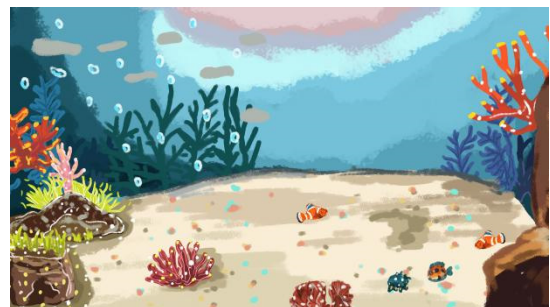


Figure 6. Self drawn by the author

4.1.2. Clever Use Principle

Colors can cleverly create an atmosphere and drive the development of a story. [3]In a picture book exploring the deep sea, when depicting the shallow sea area at the beginning, bright light blue and white are used to create a relaxed and

pleasant atmosphere, which fits the curious mood of the young protagonist when he first enters the ocean. As the plot progresses into the deep sea, dark colors such as deep blue and dark purple gradually dominate, creating a mysterious and oppressive atmosphere, implying unknown dangers, and allowing children to naturally follow the plot and immerse themselves in the development of the story through color changes. By cleverly using colors, the emotions of characters can be accurately strengthened. For example, the contrast between bright and dark colors in shallow water beaches and deep sea environments can immerse readers in the plot (Figure 7 and 8).



Figure 7. Self drawn by the author

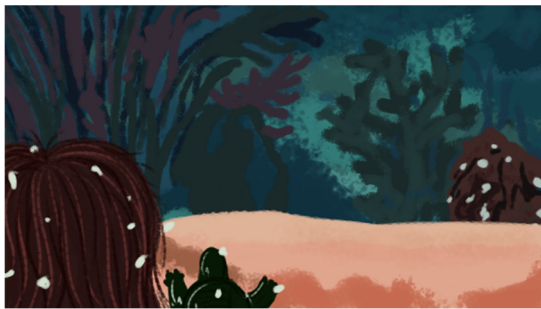


Figure 8. Self drawn by the author

4.1.3. Principle of Reasonable Color Matching

Different ocean themed picture books have different styles, and color matching needs to be adapted accordingly. Warm style picture books often use soft color combinations, such as light green, light blue, tender yellow, etc. (Figure 9); Fantasy adventure style picture books use high saturation and strong contrast colors, such as bright pink, tender yellow, deep purple, etc., to present a mysterious ocean world, enhance the sense of fantasy, make the colors complement the theme style, and enhance the overall artistic appeal of the picture book (Figure 10).



Figure 9. Self drawn by the author

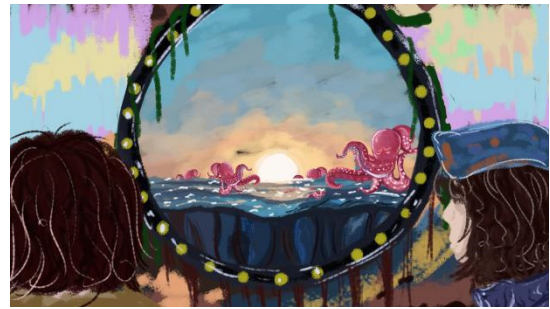


Figure 10. Self drawn by the author

4.2. Application ideas of color design

When applying color theory to color design children's picture books, several core principles need to be followed.

4.2.1. Build color hierarchy

Picture book creators should choose a main color tone for ocean themed picture books based on the story atmosphere and emotional tone. If telling a peaceful underwater story at night, deep navy blue can be used as the main color tone to create a serene and mysterious atmosphere, allowing children to have a stable overall perception of the story environment from the beginning of reading, laying a visual foundation for the subsequent plot development. The main color scheme is like a stage background, unifying the visual style and avoiding the disorderly collision of too many bright colors. Highlight key elements through color contrast within the main tone framework. Taking the scene with the little fish as the protagonist as an example, it is possible to give the fish relatively bright colors, such as bright orange, while reducing the brightness and saturation of the surrounding environment colors. When depicting the small fish shuttling through the kelp forest, the kelp is presented in a low saturation dark green color, forming a sharp contrast with the orange small fish, making the small fish the visual center naturally. This not only preserves the rich colors of the marine environment, but also guides children's attention to the protagonist, helping the story to progress smoothly (Figure 11).



Figure 11. Self drawn by the author

4.2.2. Reasonable use of blank space

Cleverly leaving blank areas in the vivid colors of marine life scenes can effectively alleviate children's visual pressure. For example, when depicting a group of colorful tropical fish, leave irregularly shaped white spaces in the gaps between the distribution of the fish to simulate clear waters in the ocean. These blank areas are like visual "breathing valves", allowing children's eyes to take a brief rest when facing numerous bright colors, avoiding fatigue caused by continuous high-intensity stimulation, guiding their gaze to move rhythmically in the picture, and improving reading comfort and focus. Blank space can also serve as a visual guide by placing blank areas on the page that are relevant to the core plot of the story, attracting children's attention to the area and naturally

focusing on key information, reducing the interference of other bright elements, allowing children to more efficiently obtain the information conveyed by the picture book and gain a deeper understanding of the story content (Figure 12).



Figure 12. Self drawn by the author

4.2.3. Color matching and emotional expression synergy

The color design of picture books should closely follow the development of the story and emotional changes. In the climax of the story, when the little fish successfully overcomes difficulties and finds a partner, it is advisable to increase the brightness and contrast of colors appropriately, using bright and lively colors such as golden and fiery red to enhance the excitement and joy atmosphere, and enhance children's emotional resonance. At this time, the bright colors serve the plot progression and will not cause distraction. In soothing and quiet plot segments, such as small fish resting in underwater caves, soft and low saturation colors are used to maintain children's attention stability. Reasonable color matching can subtly cultivate children's emotional and cognitive abilities (Figure 13). Long term reading of ocean themed picture books with appropriate use of colors can gradually help children understand the relationship between different colors and emotions, such as blue representing tranquility and red symbolizing passion. This emotional cognitive cultivation in turn enhances children's understanding of picture books, allowing them to focus more on exploring the meaning of the story rather than simply being attracted by the brightness of the color surface, fundamentally reducing the possibility of distraction caused by overly bright colors.

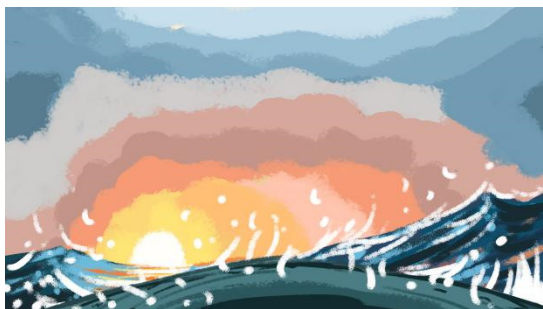


Figure 13. Self drawn by the author

5. Case Analysis

Three children's picture books with ocean themes on the market were selected for detailed and in-depth analysis from multiple perspectives, including color matching, emotional expression, and the impact on children's reading experience.

Although not purely an ocean themed picture book, 'David Can't' features a scene where David plays in the bathtub, causing the water to flood the golden mountains, and finally feels as if he is in the ocean (Figure 14). In this section, the picture book mainly uses blue as the color tone, with varying

shades of blue depicting a large amount of water and creating a dreamy yet slightly dangerous atmosphere. For example, dark green is used to outline the edges of the bathtub and the shadow of the water flow, while light green represents the brightness and dynamism of the water flow. This color design is in line with the cognitive characteristics of children, who have a natural affinity for blue. At the same time, the contrast in depth can attract children's attention, allowing them to intuitively feel the changes in David's environment and implying David's inappropriate behavior. It can not only assist in the narrative of the story, but also deepen children's understanding of the story content.



Figure 14. David, it's not allowed

The scene of "Rainbow Fish" is set against a deep blue ocean, which establishes the mysterious and vast tone of the ocean. The protagonist Rainbow Fish shines with colorful scales, and bright colors such as red, orange, yellow, green, blue, purple, etc. form a strong contrast with the dark blue background (Figure 15). This vivid color combination instantly catches the attention of young readers, making them deeply attracted at the first glance of the picture book. For example, in the scene of rainbow fish shuttling among schools of fish, other small fish often use a single dim color tone such as gray or silver, which highlights the dazzling brilliance of rainbow fish and creates a clear visual effect of primary and secondary, enhancing the protagonist's sense of existence.

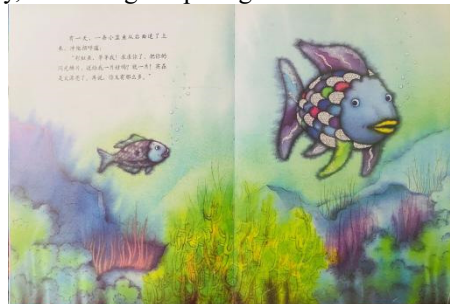


Figure 15. Rainbow Fish

The picture book 'Ocean Waves' focuses on conveying emotions through color tones (Figure 16). The picture book adopts blue, black, and white space techniques as a whole. Although only blue is used to express the ocean, the scene of turbulent waves in the ocean is depicted through brushstrokes and color brightness, creating a mysterious and profound emotional atmosphere. When depicting the surging waves, heavy blue was used to allow children to intuitively feel the power of nature and the majesty of the ocean; When depicting the calm sea surface, light blue is used to convey a peaceful and serene mood. This color design can guide children to generate corresponding emotional resonance during the reading process, cultivate their perception ability of different emotions, and also showcase the rich emotions and states of the ocean through changes in color brightness and saturation,

constructing a vivid ocean world for children.



Figure 16. sea wave

From the above cases, it can be seen that the color design of ocean themed children's picture books has the following characteristics: in terms of color matching, contrasting colors are often used to highlight the subject, showcase the rich and diverse marine life, and attract children's attention; The color tone selection depends on the story theme and emotional expression, either cold or warm, creating different atmospheres; Colors symbolize rich meanings and help children understand the characters and emotions in the story. In the process of children reading ocean themed picture books, attracting children, conveying the meaning of the story, and promoting children's cognitive and emotional development are important elements of color design.

6. Summarize

Excessive bright colors in ocean themed children's picture books do pose a risk of distracting children's attention, from confusing the primary and secondary elements of the picture to causing visual fatigue, all of which have a negative impact on the reading effect of the picture book. But by constructing

color layers, stabilizing the visual perception with the main tone and highlighting key points through contrast; Reasonably use blank space to provide visual buffering and guide the line of sight; And by achieving color matching and emotional expression synergy, accurately using colors based on the plot and cultivating children's emotional cognition, creators can effectively resolve this issue. Research has found that reasonable color design can stimulate children's interest in reading, assist in understanding, and cultivate aesthetic and emotional cognition. However, there are limitations to the research, as the number of selected cases is limited and may not cover all types of color design; There is insufficient exploration into the differences in color cognition among children from different cultural backgrounds. In the future, picture book creators should pay attention to the use of color design in ocean themed children's picture books, and create based on children's reading perspectives and color perception characteristics. At the same time, relevant research can be further expanded to explore the differences in color design of ocean themed children's picture books under different cultural backgrounds, as well as the impact of color design on children's imagination and creativity development, in order to promote the creation and development of ocean themed children's picture books and provide children with a better reading experience.

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