

Introduction to Children's Picture Book Design in Art-related Professions

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Abstract: This article aims to explore the design methods of science popularization picture books for children in the new era. On the value level, the research focuses on the spiritual guidance of children, helping them enhance their cognitive understanding of the world and adapt to the values of the new era. In the professional field, the application of animation effects and interactive technology is employed to present the content of the picture books. Ultimately, the goal is to operationalize the theory by using picture books to enable children to understand unknown fields and provide new perspectives for science popularization in the new era.

Keywords: Science Popularization Picture Books, Artistic Professions, Children's Education

1. Proposal of a Research Topic

1.1 Research Background

With the vigorous development of socio-economic conditions and the improvement of people's living standards, along with the increasing aesthetic demands of the public and the growing attention and promotion of design, art, and culture by the nation, the aesthetic pursuit of everyday items such as "clothing, food, shelter, and transportation" has been on the rise. Keeping pace with the pulse of the times, a plethora of new professions are emerging, contributing to the constant acceleration of the turnover of occupations. The disappearance of old professions and the growth of new ones mark the changes in the era.

The entrepreneurial start of the picture book industry in China was relatively late, but its development has been rapid. However, there is still a gap in the content of Chinese picture books compared to those in European and American countries. Currently published picture books in China are unevenly distributed, with a predominance of comprehensive and life science categories, followed by technology and natural science popularization, and the least in material science. China has yet to publish picture books specifically aimed at children's vocational education. With the development of China's economy and technological level, there will be an increased emphasis on children's education in the artistic and vocational fields.

1.2 Research Significance

Popular science picture books fill the gap in children's spiritual and cultural needs by presenting specialized knowledge in a concrete and simple way, subtly allowing children to understand unknown fields and elevate their cognitive levels. Occupational popular science picture books, from the perspective of establishing a life view, play a guiding role for children. Currently, there is a scarcity of research on occupational popular science picture books, making it a pressing need.

Children are inherently curious about everything, hence their most frequent question is "why?" The series of popular science picture books like "One Hundred Thousand Whys" have emerged to satisfy children's curiosity. Picture books on art-related professions address the lack of information about contemporary art careers for children. As they envision the future, some children may form mental images of new-era art professions, and these images are precisely what occupational popular science picture books provide.

From the perspective of the domestic science popularization picture book market in 2011, imported works from abroad dominated, leaving the situation for domestically created science popularization

books in a precarious position. The top-selling books in the market were mostly imported editions[1].

In 2023, the sales rankings on platforms like Taobao and Dangdang for the top ten science popularization picture books showed a shift, with 6 of them being domestically created and only 4 being foreign imports. This indicates an increasing emphasis on research and development of science popularization picture books within the Chinese publishing industry, making locally produced picture books more competitive.

In conclusion, China's science popularization picture book market demonstrates significant potential. This research aims to explore occupational science popularization picture books to promote the development of domestic science popularization picture books and broaden the market, providing beneficial assistance to children's growth.

2. The Concept and Design Method of Picture Books

2.1 Picture Book Concept and Emotional Design

Picture books, born in 19th-century Europe, are referred to as "picture books" or "illustrated books" in English, and translated as "picture book" or "book with illustrations"[2] in Chinese. They are books primarily narrated through illustrations, conveying content and emotions through a series of connected images. In the latter half of the 20th century, picture books spread to Asia, including Japan and Korea, experiencing rapid development. The origin of Chinese picture books can be traced back to the late Qing Dynasty and early Republic of China. With the development of a capitalist economy, the modern publishing industry gradually emerged, transforming books from being solely text-based to incorporating illustrations and drawings as integral components. During this period, the "Picture Story" section published in "Children's World" used illustrations to tell stories, featuring fresh and simple drawings with catchy and accessible language. This was considered the embryonic stage of Chinese picture books. In fact, as early as the Ming Dynasty, Chinese illustrated art had appeared in many novels, such as "The Story of the Western Chamber" and "The Legend of the Goddess in Heaven." However, these illustrations were limited to a few images. It was not until the Republican era that a significant number of illustrations appeared in the national language textbooks published by the Kaiming Bookstore, marking the beginning of modern picture books.

Picture books can be divided into adult picture books and children's picture books, with the term "picture book" typically referring to children's picture books. Because picture books primarily feature narrative through pictures, they are highly suitable for children who either do not know how to read or have a limited vocabulary, especially toddlers. The toddler stage is a sensitive period for the development of various aspects of cognition, emotions, and more, making it a crucial period for human enlightenment and education[2]. The key elements of a picture book usually include both pictures and text, with pictures being the main component. The illustrations in picture books typically have strong narrative functions and consist of content and form. The content of the illustrations is mainly composed of themes and topics, where themes represent the events and emotions depicted in the pictures, and topics are a fusion of the designer's main ideas and the objective themes. The form of the illustrations refers to the style in which the content exists, primarily constituted by internal and external visual language. Internal visual language mainly includes layout and design elements, while external visual language encompasses character and color design elements.

Picture books and illustrated books are significantly different, and many people mistakenly believe that picture books are synonymous with illustrated books, which is not the case. The distinction between picture books and illustrated books lies in the fact that picture books typically have independent illustrators with a distinct artistic style. The illustrations in picture books convey both emotions and scenes and can stand alone as individual works of art. In contrast, the illustrated books commonly seen refer to books with both text and images. Although these books may feature engaging illustrations, the pictures merely serve as a complement to the text. They represent a type of illustrated content that functions within a textual system. The words in these books do not possess a "language function" inherent in the illustrations, and the richness of imagination cannot be derived solely from the pictures.

The picture book is like watching a movie, displaying a broad perspective with detailed close-ups, presenting interesting storylines, and concealing a rhythm design of exposition, rising action, climax, and resolution. Picture books are suitable for readers of all ages, providing different inspirations for each. Internationally recognized as the most suitable books for young children, picture books comprehensively assist in constructing a child's mental world and nurturing multiple intelligences [3], including enhancing

aesthetic ability, logical thinking, language expression, concentration, broadening a child's horizons, and more. Picture books also create opportunities for parents to communicate with their children, sharing the joy and excitement of reading. Science-themed picture books are one category of picture books, mainly divided into two major types: pure science, which focuses on conveying knowledge points, and story-driven science, which weaves various knowledge points into a narrative or explains process-oriented knowledge. Their characteristics include: (1) completeness of illustrations: the "pictures" in picture books are not mere illustrations or disconnected from the text; the "pictures" can independently convey a complete content. In simple terms, the story's content can be understood just by looking at the pictures. (2) Perfect integration of pictures and text: children's picture books seamlessly combine illustrations and text, compensating for each other's deficiencies and leveraging their respective strengths. Illustrations need to attract readers directly and quickly, while text expression requires concise and vivid descriptions of the illustrations. (3) Content full of interest and rich in philosophy: both the illustrations and text are full of whimsy. Children can find their joy in such fairy tales or life stories.

2.2 Overview of Emotional Level Theory

Emotion is an inherent essence of human beings, and to some extent, it stands in opposition to logic and rationality. When "industrialized products" representing standard production acquire emotions and sentiments, they are more likely to be favored and revered by people. "Emotional design" represents the emotions and sentiments in design. Therefore, "emotional design" is a secret to many successful designs, allowing a design to break free from constraints and processes, possessing more warmth and uniqueness. We often see the success of many designs is attributed to a humane detail.

Emotional design can be divided into three aspects: (1) Observing life, seeking inspiration, and discovering problems from life. (2) Following human nature, thinking and caring from the perspective of people, giving the design empathetic capabilities. (3) Emphasizing research, understanding the thoughts and needs of your target users through research.

The emotional design of popular science picture books involves applying emotional design theories to the design of popular science picture books for users. The design focus is on popular science picture books. By analyzing the emotional factors of users, these emotional factors are integrated into the design elements of the picture book, allowing the design to fully meet the emotional needs of users.

Before engaging in the practice of designing picture books, it is necessary to have a deep understanding of the basic concepts of picture books, including their definition and features. Additionally, through emotional design theories, an understanding of the emotional needs of children is gained, aiming to evoke emotional resonance and stimulate children's interest in learning. In-depth research and analysis of current and past popular science picture books, including an understanding of market conditions and research progress, are also essential.

From the perspective of the social environment and child psychology, understanding the needs of children for popular science picture books is crucial. This includes understanding children's cognitive levels, interests, and preferences. In the social environment, popular science picture books serve as a means of combining education with entertainment, guiding children to learn knowledge in an enjoyable manner. From a psychological perspective, children's needs are constantly evolving, and these are factors that influence the design of picture books.

By creating picture books in practice, the application of theory has been tested in practical situations to evaluate the effectiveness of design ideas.

3. The Research Status at Home and Abroad

As of October 28, 2023, there are 423 Chinese-language literature articles related to the research on popular science picture books in the CNKI (China National Knowledge Infrastructure) database. The majority of these articles focus on themes such as Chinese intangible cultural heritage and nature. However, there is a lack of literature on professional popular science picture books. Currently, there is a high demand for picture books in the Chinese market, but most of the content revolves around themes of family and friendship. The content often fails to keep pace with the advancements in technology and the changing cultural and spiritual needs of the new era. The target age group is generally 8 to 15 years old, with this age group already possessing a certain level of reading ability. Single-themed content is insufficient to meet the spiritual needs of children. There is a particularly noticeable scarcity of popular science picture books for children focused on professional careers.

Regarding foreign literature on the research of popular science picture books, there are 61 English-language articles in the CNKI database. Most of these articles revolve around themes such as nature, life, and the universe. Among them, "The Importance of Picture Books for Learning" emphasizes the significance of picture books in guiding children's learning and how they can help cultivate self-awareness, promoting children's intellectual development. However, there still lacks literature specifically addressing popular science picture books for children focused on professional careers.

4. The Popularization and Significance of the Picture Book "Dream Fair"

4.1 Popularization of Art Related Professions

With the development of the economy and society, emerging professions continue to emerge. This article selects six art-related professions that are not well known to the public for research. They are doll doctors, stage designers, wildlife photographers, garden designers, cultural relic restorers, and dream painters, among others.

A doll doctor is a doctor who treats dolls. The "doll therapy" business is not only popular among children but also attracts many adults and doll collectors. According to experts' predictions, given the increasing prices of modern dolls and the resurgence of the trend of thrift, doll doctors will be welcomed by more and more people. Currently, there are no individuals engaged in the "doll doctor" profession in the country, but the market prospects are still optimistic according to experts.

Stage designers bring to life the atmosphere and emotions conveyed in scripts, stories, or music, creating realistic audiovisual effects for the audience through the design of scenes, costumes, lighting, and other elements.

Wildlife photographers often venture deep into the wilderness, exploring the tracks of wild animals, observing and documenting the most authentic aspects of wildlife through their eyes and lenses.

Gardening is, to a large extent, a performing art. Like all music and drama, a garden needs constant grooming and maintenance while preserving its current state, in order to maintain its connection with residents or users and its own vitality.

Artifact restoration specialists restore damaged objects to their original forms, presenting them with intact visual effects in terms of color, patterns, and texture. This requires the restorer to have skilled techniques, as well as a keen sense of color, analytical ability, and a high level of artistic cultivation and proficiency, otherwise risking the loss of the antique charm of the artifact.

Dreamweavers are responsible for painting people's dreams. During the drawing process, Dreamweavers guide individuals to articulate their needs, gradually reconstructing the dream. This process serves as a means of healing the inner regrets of individuals.

4.2 Analysis of Children's Needs for Vocational Popular Science Picture Books

Children's cognitive level of professions is in the early stage, and they cannot fully understand abstract concepts and concrete words. Picture-based picture books are one of the important ways for young children and adolescents to understand the world[2]. Children have various needs in the process of growing up. In the early stages, after satisfying physiological needs, cognitive development gradually occurs, self-awareness emerges, curiosity arises, and children need to determine fundamental questions such as "Who am I?" "Where do I come from?" "Where am I going?" and "What am I going to do?" Occupational cognition is one aspect of this.

Most children's understanding of professions is limited to the most basic common knowledge, such as teachers, police officers, doctors, or firefighters that they encounter in their daily lives. However, with the increasing age and the increasing sunk costs, children's choices become more limited as adults. In the context of Chinese society, most people tend to choose a stable, secure, and "respectable" profession, which is also because people's understanding of professions is largely influenced by the past experiences of parents or elders.

However, in today's society, both awareness and demands are evolving. Past experiences are applicable to past problems, and from the perspective of current employment and the pursuit of life values, they have limitations. At the same time, what most young children are most interested in is games and picture books[2]. As books with pictures as the main theme and stories as the thread, picture books are

one of the ways to increase children's awareness of vocational education. They also help children understand more about emerging professions, guide children to find their own interests, and serve as an effective means to expand children's cognitive boundaries.

4.3 AR Picture Book

With the advancement of technology, the medium of children's picture books has undergone a transformation, shifting from traditional paper-based media to digital media, enriching the interactive forms between children and the content of picture books. In particular, the application of Augmented Reality (AR) technology has made the content of picture books more three-dimensional and dynamic, enhancing children's reading experience. For instance, AR children's educational picture books such as "Abby's 3D Notes" and "The Amazing Journey of Water Baby" utilize AR technology, allowing children to scan illustrations with a device to view dynamic educational animations, facilitating a deeper understanding of professional knowledge. Additionally, the AR pop-up book "Together Every Year" combines traditional festival knowledge, folklore stories, pop-up paper art, and AR technology, enabling children to experience the charm of Chinese traditional culture through interaction [5].

4.4 Design Practice of Picture Book Dream Fairy

Picture books are structured around stories, and a good story can evoke emotional resonance in children, stimulate their curiosity, and effectively convey information to them. Therefore, starting from the perspective of children, using interesting and guided dialogues as supplements can enhance the immersion of picture books, increasing their appeal and educational value.

The majority of a picture book is occupied by illustrations, as children have weaker grasp of text. The visual aspect of illustrations intuitively influences children's perception of the picture book. In the design process, the proportion of illustrations is enlarged, and characters are designed to be cute to increase the book's friendliness. Additionally, children have good color perception[4], so to avoid monotony, many small brushstrokes are used in the drawing process to enrich the color and enhance the beauty of the illustrations. Furthermore, AR technology is utilized to transform two-dimensional illustrations into three-dimensional models, adding a sense of depth and dynamics to the picture book.

The picture book "Dream Fairy" is an original creation by the author and team members, and the design of the illustrations is carefully completed through emotional design theory. In terms of illustration style, we blend our own drawing style with that of many Spanish illustrators. Regarding text design, we imitate a cute and childish font, adjusting the font size for titles and main text to create a lively and interesting layout.

The story unfolds in a magical world where everyone can explore and experience their dream professions through a bridge between dreams and reality.

Character Setting:

1) Zhi Zhi: The protagonist of the story, a little girl full of curiosity and a desire for exploration, representing every child with a curiosity about the unknown.

2) Doll Doctor, Stage Designer, Wildlife Photographer, Artifact Restorer, Garden Designer, and Dream Illustrator: These characters are various professions that Zhi Zhi encounters in her dreams, guiding her to understand and experience these occupations.

Theme Setting: Exploration and Self-discovery. The protagonist, Zhi Zhi, undergoes a transformation from going with the flow and feeling lost to actively seeking her dreams through a series of explorations into different professions. This encourages readers to find their true passion through effort and perseverance.

5. Conclusion

Children's education is a hot topic in today's society. Children often have limited understanding of professions and their pathways. In the traditional education field, they rarely receive specialized vocational education. Instead, they usually rely on people around them to gain a rough understanding. The specific meaning of professions is often unclear to them. Therefore, against the backdrop of a scarcity of occupational education in popular children's literature, exploring occupational awareness through informative picture books holds tremendous potential and significance. This article addresses this

situation and proposes using informative picture books to guide children towards a more comprehensive understanding of professions.

Focusing on occupational informative picture books, in terms of theme and visual design, the author selected six relatively unfamiliar professions related to the arts. Drawing on the theory of emotional design, the illustrations were crafted to evoke emotions, resulting in the creation of the original picture book titled "Dream Fairy."

With the development of the economic and social landscape, the diversity and complexity of professions have increased. This requires us to not only consider the cognitive characteristics and emotional needs of children when designing occupational informative picture books but also to keep up with the evolution of professions over time. Simultaneously, with technological advancements, digital informative picture books may become a new trend, providing new perspectives for future research in this field.

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