

# Research on Interactive Design in Children's Books

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## ABSTRACT

This paper explores the interactivity in the design of children's books, so as to seek the design suitable for children from different types and all current designs. Starting from the particularity of pop-up books to various forms of pop-up books and reference books with the increase of children's interest, this paper believes that pop-up books can not only increase children's interest, but also transfer knowledge and enable children to learn knowledge. There are many kinds of books such as pop-up books and toy books. This is a new way of children's book design. Different book design methods will bring different feelings to children. Pop-up books and toy books aim at increasing children's interest and interaction. And the reasonable appearance design, appropriate decoration and safety should be taken into account.

**Keywords:** *Children's book, Interactivity, Pop-up book.*

## 1. INTRODUCTION

### 1.1 Children's Books

Books are one of the important sources of knowledge and an indispensable way for human beings to acquire knowledge in life. The childhood stage is the most concentrated and important stage of acquiring knowledge, and books are also very important for them. Children's books are books designed for children at this age. Children's books still mainly aim at spreading knowledge, and different books are designed for children to read through different forms. Books can not only spread knowledge, but also convey emotions, and can change the way children think and learn. Children's books can inspire children's emotions, and also enable children to feel the different learning feelings experienced in different book forms at the initial stage of life.

### 1.2 Classification of Children's Books

There are many categories of children's books. However, the more common children's books on the market are still mainly ordinary printing books. The characteristics of this kind of books are succinct and clear. Without the decoration, the content is clear and easy to read. But its main disadvantage is the lack of innovation, and it is

almost the same as other types of books or even some middle-aged and elderly books. Children's books also include other types, such as toy books, pop-up books and interactive books. These books include cards, flips, small toys and other interactive methods. Books can not only include the process of reading and watching, but also allow children to participate in interaction. Books can also be played.

### 1.3 Characteristics of Children's Books

The design of children's books must conform to the characteristics of children at this age and children's nature. Children's books should not only maintain the readability of ordinary books, but also have innovative forms, so as to highlight the distinctive characteristics. For example, in order to meet the characteristics of children's love of play, books can be designed into various folding modes, or books can be designed into game books, which will greatly enhance children's interest in reading and learning, and make children love learning more. In line with the characteristics of less literacy and easy reading, it is necessary to use pictures to convey language, put more pictures and fewer words as much as possible, and use bright colors and rich picture forms to stimulate children's brain, which is also helpful for children's learning.

## **2. OVERVIEW OF INTERACTIVE DESIGN**

"Games" and "interactions" seem to be more attractive to children. Interactive design is a design method that allows children to participate in it personally. With the use of different forms of book design, the goal of combining children with books can be achieved. The design of a children's book may have many different ways of presentation, which may be like an animal, a fruit, or a house. The alienation of book forms is the most direct factor that attracts children. It combines the content of books with the external structure to create a new form of children's books. By changing the forms of books, children can participate in the interaction. This interactivity is a process that allows children to use their brains, eyes, hands and other aspects to experience comprehensively. In the whole reading process, this method can make children more focused.

### ***2.1 Definition of "Interactive Design"***

Dewey, a famous American philosopher and educator, believes that the objective world does not exist without human experience, or even if it exists, it is chaotic and meaningless. Experience makes human beings feel the world and makes human beings unite with the world. In the process of education, it not only teaches the children the scientific knowledge that already exists in the world, but also lets the children gain experience in the activities, which can deepen the learning significance. The idea of interactive design is based on this concept, allowing children to participate as much as possible, mobilizing their five senses, and allowing them to experience knowledge and understand the world while having fun.

Interactive design is not only the interactive mode on hands, but also includes some other interactive methods, for example, it can also use the stimulation of hearing and smell to make books interact with children.

### ***2.2 Innovative Significance of Interactive Design***

#### ***2.2.1 Interactive Design Breaks the Single Mode of Book Design***

There is still a certain difference between interactive design and traditional ordinary printing books. It is different from traditional books in terms

of material, structure, and content presentation. It breaks the expression form of flat books and introduces new design methods. This makes this kind of books look "different" from other books. Books are added with toys, or some foldable cards, etc., so they can attract children's attention and be more acceptable to them. There are also various forms of interactive books. Its flipping form and content presentation can also produce different effects with different design methods and opening methods, which greatly enriches children's visual enjoyment experience. Children can learn knowledge in a more realistic and visual way, and have fun in the learning process.

#### ***2.2.2 Interactive Design Is a Unique Design Type in Line with the Characteristics of Children***

Interactivity is like games. It is a way that children prefer. Games can bring people a relaxed and happy feeling. Children are innocent, don't think too much, are aimless, have little understanding of the outside world, and are easily attracted by what they are interested in. Perhaps in their eyes, the things they are interested in are more valuable than anything invaluable. Children can release their nature of playing, learn about the world and feel knowledge through this interactive game. The childhood is a special stage where they prefer to have fun. Children are easily distracted during the learning process, and the interactive design is more suitable for children. Children are more active in the process of reading and learning, and are more able to learn actively through the process of interacting with books.

Children are curious. At this special age, they constantly explore the unknown world, perceive and learn new things. Learning in the process of enjoyment is nothing more than a thing that can improve learning efficiency.

## **3. THE RELATIONSHIP BETWEEN THE CHARACTERISTICS OF CHILDHOOD AND INTERACTIVITY**

### ***3.1 The Relationship Between Children's Psychological Characteristics and Interactivity***

In the whole childhood, children's unintentional attention has reached a high level of development and occupies a dominant position. Bright and

intuitive stimuli or sudden changes in stimuli will cause children's unintentional attention. The change of children's subjective state can also dominate unintentional attention. Children's curious and interested things can cause unintentional attention, which is a very natural process.

As everyone knows, children generally have the nature of playing. The love of play here refers to the love of doing things and discovering some novel things. Interactivity is just in line with this feature, which is not only in line with children's psychological characteristics, but also can increase the interactivity of books. This is a very appropriate thing.

### ***3.2 The Relationship Between Children's Visual Characteristics and Interactivity***

Children at this age also have different visual perception from people of other ages. Children are more sensitive. Some bright colors will attract their attention. In the process of interaction, bright colors can better stimulate children's visual nerve and attract children's attention. Visually, children at this age also tend to some picture information. Because children's literacy and reading ability is limited, pictures are often a main way to convey knowledge. Therefore, it is suggested to add a lot of picture information in interactive design, and interactive folding can also be designed into a variety of forms. With the visual effects, books can attract children's attention.

## **4. THE EMBODIMENT OF INTERACTIVE DESIGN FUNCTION IN CHILDREN'S BOOKS**

### ***4.1 Improving Children's Self-learning and Practical Ability***

Modern educational reform measures constantly emphasize that in school education, it should not use the traditional ways of preaching, teaching and dispelling doubts, but changes from being "teacher-centered" to being "student-centered". The so-called "student-centered" concept is student-oriented and respects the development of students' nature. Due to the influence of age, physical and psychological development, children's attention is easily distracted compared with people of other ages, and children naturally like the form of interaction. Therefore, in the implementation of children's education, it is required to respect this

characteristic of children and obtain knowledge in the process of interaction. Only in this way can we get twice the result with half the effort and achieve an ideal effect.

The most fundamental purpose of reading books is to obtain knowledge. Reading books is also the most common and common way to obtain knowledge. But people at all ages are reading books, and the forms of expression of books among people at all ages should be different to adapt to the people at different age. Children's books are made into interactive forms, which not only transfer knowledge, but also help them form a good habit of active learning, and their practical ability is also improved.

### ***4.2 Promoting the All-round Development of Children***

Great changes are taking place in the physical and physiological aspects of children at this age, and they are easily to be affected by the outside world. Children's development should not be limited to one aspect. It is necessary to pay attention to all-round development. Most of the habits generated by a person's subsequent development are generated and formed in the childhood stage, and it is very important to cultivate the learning habits in the childhood stage. The interactive design of children's books can enable children to participate in all aspects. In addition to the reading, it also increases their curiosity and practical ability when children interact with books, which is also helpful for future learning.

## **5. INTERACTIVE FEATURES IN CHILDREN'S BOOK DESIGN**

The biggest feature of interactive book design is the interactivity, which is designed by finding the interest points of children at this age. Its special design methods and forms of expression are different from that of ordinary books. Interactive books pay more attention to children. In the design, play and interaction are preferred. Pictures are more than words, and a variety of structures are combined, which are more suitable for children to read.

### ***5.1 Interest***

The characteristic of interest is the starting point of designing pop-up books, a "special" kind of books. Children are born with a strong curiosity

about everything in the world, and are also in a state of "knowing nothing" to the world, which inspire the children's great curiosity on the unknown. For the children who never contact book, or this kind of "special" books, their reading desire is very high. The appearance of a book firstly affects and stimulates children's eyes. The children pay the most attention to the surface of the book and the change of book form, and different books will certainly bring different experience to children.

## **5.2 Security**

Of course, in the process of book design, security should also be taken into account. In particular, this type of pop-up books, tool books, etc. are made of special materials and special paper, taking into account that children will not be harmed in the process of browsing and using. Children's bodies are relatively young and vulnerable to external harm. Tool books usually have many small parts. The use of book materials should not be too hard, and too sharp parts should not be used in the process of book design, so as to avoid some danger as much as possible. Protecting children's safety is also a very important aspect of designing interactive books.

## **5.3 Readability**

The ultimate purpose of book design is to learn and read. A good book is not too complicated. Human beings should find its concise expression in a variety of design methods. At this age, children's cognitive level is still relatively limited. They may not be able to fully understand things that are too complex. Only simple and easy method is the best. If children understand the form of books, they can read books more efficiently. In the process of reading books, they will not damage books by not understanding their complicated folding patterns. Also, they don't be confused because of the complicated forms. And complicated forms will greatly reduce the reading interest of children.

# **6. EXPRESSION OF INTERACTIVE CHARACTERISTICS IN CHILDREN'S BOOK DESIGN**

## **6.1 Sensory Interactive Experience**

Everyone has different feelings about the outside world, and interactive experience is also a physiological need for everyone. Adding some stimuli that can be felt by human senses to

children's books can increase the attraction for children and stimulate children's brain nerves. Interactive experience can be achieved by the participation of multiple organs of the human body at the same time. The more organs participate, the deeper the feeling is.

General traditional books only mobilize the eyes. Sometimes, the children feel a little boring after focusing for too long time, especially for children with weak self-control. Through the participation of visual, touch, listening, smell, taste and other sensory experiences, interactive experiential children's book can be read. The reading becomes a comprehensive experience involving eyes, hands, mind and other senses, changing static feelings into dynamic ones and greatly improving children's sensory experience.

### *6.1.1 Visual Interactive Experience*

Visual perception is the most intuitive way for people to understand the world. Human beings face different things in the world every day, and the most direct way is to see with eyes. Visual interactive experience is a very key link in the design of interactive books. Pictures, colors and storylines will be used. The proportion of the picture shall be as much as possible, and the color can be more bright and beautiful. A variety of expression methods can be used to attract children's attention. Children use eyes to "communicate" with books.

In the process of children's interaction with books, visual design generally plays a guiding role, which can guide children's learning. The proper use of color is also conducive to rendering the atmosphere.

### *6.1.2 Olfactory Interactive Experience*

The nose is also a very important sensory organ of the human body. The use of smell can bring people different feelings, and even regulate and control people's mental state and emotion. A good taste can make people remember deeply. The aromatic taste can also stimulate children's brain nerves. And children will have a sense of pleasure in the process of reading.

The designers can also add some inner pages with taste in different popular science books. By adding different tastes in books, children can more intuitively feel the different tastes of different kinds of objects and understand the contents of books.

Children can also directly feel the different feelings brought by different tastes.

### 6.1.3 Tactile Interactive Experience

Tactile experience is also an essential part for children. Books with different materials bring different experiences for children by selecting appropriate materials for book design. At this age, designers can choose special materials to design books to increase their different feelings when reading books.

For example, the related materials of animal fur can be added in animal science books to deepen children's understanding of animals, which can make children more intuitively feel the different feelings brought by different fur. The tactile experience produced by paper can also produce different texture effects by different processing technologies. The processing method of laser silver ironing is used to give children different tactile feelings in the book. Children can learn in play, experience the great fun of self-learning and immerse themselves in the fun of learning.

## 6.2 Behavior Interactive Experience

### 6.2.1 Inner-page Folding Experience

Folding form can be said to be the most common form of pop-up books. Generally speaking, the folding form of books is to change the inner pages of books, and the interaction between hands and brain can be carried out in the process of children folding books. A variety of folding pages should be added to the books to make the whole book more vivid and interesting. The folding pages of the book can also be connected with the whole book. The whole process of folding is completed by children themselves. Various and colorful folding pages enable children to better learn knowledge in the process of playing and enjoying.



Figure 1 HOLLO — Airport.

As shown in "Figure 1", "HOLLO — Airport" is a popular science book about children's

interaction and is also a typical example. The inner pages hidden in the book can be made into such folding pages with knowledge points, so as to interact with children. Every time children open a book, they will learn something by taking the initiative. And there are different surprises waiting for children, which will also stimulate children's great curiosity to explore books. The rich and colorful contents of the inner pages will also greatly stimulate children's interest and improve their learning efficiency.

### 6.2.2 Flipping Experience

Flipping form of children's interactive books is also a very special book design form. By increasing the interaction form between pages, the interaction with children will increase. It is also similar to folding form of children's books, but it is different from folding-type children's books in the form of display and interaction. Now there are many books to combine the two forms on the market, which are more colorful, and make the forms of interaction between children and books more diverse, so that children feel fresh.



Figure 2 Toy experiment.

As shown in "Figure 2", there is the connection between inner pages of the toy experiment book. When children open the volcano page, the whole state of the volcano will gradually appear in their eyes, just like witnessing the whole process of volcanic eruption. This not only brings children visual experience, but also brings them great interest in reading.

### 6.2.3 Game Interactive Experience

Game is an interactive mode loved by children. If it can be combined with books, it will certainly produce unexpected results. Game interactive books use a variety of materials to diversify the forms of books as much as possible, so that

children feel like playing games in the process of reading books. It must be a more meaningful way for children to carry out the interaction with books in the game.

At present, many game interactive books of children have appropriately added interactive content in their inner pages, so that children can better experience the fun of learning and playing.



Figure 3 Toy experiment.

As shown in "Figure 3", an inner page is added to the toy experiment book, allowing children to interact with the book. Children can learn and understand the contents described in the book vividly and interestingly by pulling the contents designed in the book. The biting mechanical crocodile has become a toy for children to play with, so that children can easily learn physical knowledge in play.

## 7. CONCLUSION

A golden period for better cultivation of learning ability and reading habits is the childhood. In addition to school education and family education, children's self-reading ability and self-learning ability are also the main sources of learning. Books are the most common form of materials in learning. Children still lack the ability of autonomous learning and need to be guided. Ordinary books do not have much attraction for children. They use pop-up books, tool books and other "game" means to attract children. This "new" book design method breaks the original expression form of ordinary books, and the book content and interactive form become more colorful, vivid and interesting. It allows children to participate and interact with books, which not only improves children's practical ability and learning efficiency, but also improves children's autonomous learning ability.

## AUTHORS' CONTRIBUTIONS

This paper is independently completed by Yu Song.

## REFERENCES

- [1] Li Lin. Art beyond plane — Children's book design based on interactive experience [D]. Shandong: Qingdao University, 2014. (in Chinese)
- [2] Dou Wen. Discussion on the interaction of children's book design [D]. Hunan: Hunan Normal University, 2011. (in Chinese)
- [3] Ge Xin. Research on the application of interactivity in the design of children's books [D]. Shandong University of Arts and Design, 2012. (in Chinese)
- [4] Li Yingrui. Analysis of the application of interactivity in the design of children's books [D]. Shanxi: Shanxi Normal University, 2016. (in Chinese)
- [5] Wang Jue. Exploration of the game-based design of children's books [D]. Jiangsu: Nanjing Normal University, 2013. (in Chinese)
- [6] Wang Xuwei. "Looking" and "Moving" in Design of Children's Books [J]. Design, 2017, (13): 16-17. (in Chinese)
- [7] Zhou Yan. Research on the Innovative Design of Books for Children from 3 to 6 Years Old [J]. Art Technology, 2019, 32(13): 148,154. (in Chinese)
- [8] Xi Sicong, Wang Yunqi. The interaction between the design of children's books and the creation of illustrations [J]. Big Stage, 2014, (8): 37-38. (in Chinese)
- [9] Song Han. Research on book design of children's preschool sex education based on interactive form [D]. Sichuan: Southwest Jiaotong University, 2019. (in Chinese)
- [10] Liu Baiyang. The role of games in promoting children's psychological development [A]. The Research Institute of Educational Science, Chinese Academy of Management Science. The compilation of scientific research results of "Research on Teacher Education Capacity" (Volume 11) [C]. Institute of Educational Science, Chinese Academy of Management Sciences, 2018: 2. (in Chinese)