

A Brief Discussion on the Development and Research of Original Interactive Children's Picture Books in China

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ABSTRACT

With the development of global research on child education, the benefits of reading for children's cognitive development have been widely recognized. Children's picture books serve as important vehicles for children to understand the world around them, establish values, and develop life beliefs. They can also be powerful tools in strengthening parent-child relationships. Currently, an increasing variety of children's picture books are emerging in the public eye. In the children's market in China, there is strong inclusivity toward picture books from different countries, cultures, and artistic styles. Chinese child readers and parents have shown a strong interest in and acceptance of diverse picture book content. This inclusivity provides children with a wider range of reading choices and enriches their learning experiences. In order to better stimulate children's interest in reading and assist parents without parenting or educational experience, it is essential to provide them with better guidance and confidence during parent-child reading sessions. Therefore, in the design process of children's picture books, there are several aspects that designers need to consider comprehensively. Firstly, there should be a clear understanding of the psychological needs of children at different age stages. Secondly, careful consideration should be given to the visual pairing of illustrations and text, visual colour schemes, interactivity, and educational value, as well as the quality and safety aspects of the picture book. The process of reading together with parents and young children is not only a journey for children to understand the world but also a process for parents to understand the world of their children. It is a growth experience for both children and parents, providing them with high-quality bonding time and valuable companionship throughout their lives. Research on children's picture books has been initiated earlier and achieved significant accomplishments in developed countries abroad. Countries such as the United States, the United Kingdom, and Japan have made significant contributions to the development of children's literature through active exploration and innovation in the research and publishing of children's picture books. They pay attention to children's developmental needs and psychological growth, emphasising the quality of content, artistic expression, and educational value. They have set benchmarks in the global children's picture book market and have had a profound impact on the creation and research of children's picture books in other countries. Compared to other countries, China had a relatively late start in the field of children's picture books. However, over the past few decades, the children's picture book market in China has experienced rapid development and transformation. With the growth of the market and the support of policies, there has been continuous progress in content creation, publishing quality, and artistic expression of children's

picture books. With increasing attention and support, the creation and research of children's picture books in China are bound to further develop and expand. This article first expounds on the research background and current situation of children's picture books, laying a practical foundation for the purpose and significance of the study. It explores the concept of interactive children's picture books and investigates the interactive forms of excellent children's picture books from abroad. It also examines the direction and forms of interactive design in original children's picture books in China, aiming to establish a new connection between children and picture books. This will better cater to children's curiosity, activity, and engagement needs, and provide a more diverse, interesting, and personalised reading experience.

Keywords: *Children's picture books, interactive forms, integrated materials.*

RESEARCH BACKGROUND AND CURRENT SITUATION

With the development of society and the improvement of education levels, the issue of children's upbringing and education has garnered significant attention. An increasing number of families have begun to recognize the importance of children's picture books in the growth of children. However, the children's picture book market in China has long been inclined towards importing foreign works, as these works have already gained widespread recognition and success on a global scale. Meanwhile, the awareness and demand for original children's picture books in the domestic market are also gradually increasing, but they are still relatively limited. Parents have a higher level of recognition for children's picture books from these developed countries. According to the "China Children's Picture Book Museum Industry Survey Analysis and Market Outlook Report (2018-2025)", the children's picture book market in China is primarily dominated by children's picture books from European, American, and Japanese/Korean countries. Original children's picture books from China have a relatively small market share. According to a survey conducted in 2016, imported children's picture books accounted for 80% of the entire children's picture book market. According to statistics from Dangdang.com, among the top 200 bestselling picture books in China from 2018 to 2019, there were 8 and 13 Chinese original picture books, accounting for 4% and 7% of the total, respectively. In the "Top 100 Children's Picture Books" list released by JD.com in 2018, there were no Chinese original picture books included (Hu et al., 2012).

Although the market share of Chinese original children's picture books is relatively small, in recent years, with the increasing awareness of children's reading and the support of the government towards the cultural and creative industries, more and more domestic creators have started to pay attention to and create original children's picture books. In recent years, China has also produced some outstanding picture book masters with international influence. Their works are innovative, with unique visual styles and atmospheres in both story and artwork. These picture books have the ability to stimulate children's thinking and imagination, evoking resonance and curiosity among children. One example is Zhu Chengliang, known for his notable works such as "Old Tire" and "Flame." Among them, the picture book "Reunion" won the "Best Children's Picture Book" award in the 2011 New York Times annual "Best Illustrated Children's Books" list. It was also the first prize-winning work in the inaugural Feng Zikai Children's Picture Book Award. Jiu'er is another notable figure, known for her representative works such as "Don't Jump Rope with Frogs" and "Ewenki's Reindeer." She is the first Chinese female artist to be selected for the Honor List of the International Board on Books for Young People (IBBY). Xiong Liang is a renowned Chinese master of original picture books and is considered the spokesperson for "Chinese-style" children's picture books. His works have received accolades such as the Best Children's Book Award from Taiwan's Open Book Festival. Some of his notable works include "Wu Song Fights the Tiger" and "Little Stone Lion."

With the development and exchange of educational environments both domestically and internationally, children's reading formats have become increasingly diverse. The emergence of new cultures, new visual elements, and new media, along with increased international exchanges and the widespread use of the internet, has influenced the educational and aesthetic perspectives of both children and parents. As a result, there are higher expectations regarding the points of interest and areas of focus in children's picture books. Currently, the children's picture book market in China covers a wide range, with diverse varieties and rich themes. How to make Chinese original children's picture books stand out in the

vast sea of books is a constant consideration for picture book designers. Designers need to break free from conventional thinking and seek innovative elements to gain recognition from both parents and children. Therefore, interactive children's picture books are more in line with the reading needs of young children. They not only have readability but also incorporate elements of playfulness. Based on the developmental characteristics of young children, it is essential to focus on exploring the interactive forms between children and picture books, making reading more enjoyable and effortless for them. Researchers believe that making Chinese original children's picture books more competitive in the market is of utmost importance. The development of Chinese original children's picture books is closely related to the development and inheritance of Chinese culture. As picture book designers, it is our responsibility and obligation to bring new hope to Chinese original children's picture books and make the necessary contributions they deserve.

Reading a book is a unique opportunity to see the world from another person's perspective (Maniam, 2011). Children's reading experience goes beyond mere visual perception. Books cover a wide range of knowledge, such as food, animals, musical instruments, and more. Therefore, we can enhance children's understanding of book content by employing various artistic forms of expression or materials. By stimulating children's other senses, we can maximize and optimize the educational value of picture books. Japanese graphic design master Kenya Hara believes that graphic design is not merely about visual perception but about using the human brain to sense and transmit information through the "five senses" to the audience (Hui et al., 2020). A good story plot can help children establish emotional connections and character identification. Rich colors and attractive illustration styles can capture children's attention, while the use of interactive elements can stimulate their curiosity and imagination. Interactive forms are an embellishment to the design of children's picture books, adding an extra touch of delight. Mr. Lyu Jingren believes that book design is meant to create interaction between readers and books during the reading process (Liu & Huo, 2023).

RESEARCH METHODOLOGY AND PROCESS

Literature research method: According to the research direction of the thesis, through the collection, screening, analysis, and synthesis of relevant literature, carefully read and analyze the literature that meets the requirements, extract important information, viewpoints, and conclusions, and prepare for the writing of the thesis.

Identification of selected topics

The researchers chose "The Development of Original Interactive Children's Picture Books in China" as the research topic according to their own professional direction and the increasing attention paid by the state to soft power culture and children's education.

Literature collection

Manual searches were used to read relevant literature in specialised journals for downloading and marking. When collecting the literature, the approach of time from near to far was adopted to find the more cutting-edge research results. Search channels include: the National Library of China, Google Scholar, Microsoft Scholar, China Knowledge Network, Wanfang, and so on.

Preparation of an outline

Read the relevant literature to determine the relevance to the researcher's chosen topic. Perform a careful reading of the collected literature, take notes, and record the purpose of the study, results and recommendations in the literature.

Writing a literature review

This paper will use the literature research method to analyse the characteristics and development

strategies of interactive children's picture books, elucidate the research history, current situation and development direction of the relevant issues through the study of the relevant papers of Zhang Meng, Lv Sihan, Jiang Ye, and Liu Yuting, find out the solved problems and remaining problems, and focus on the impact on the current and the development trend.

METHODOLOGY FRAMEWORK

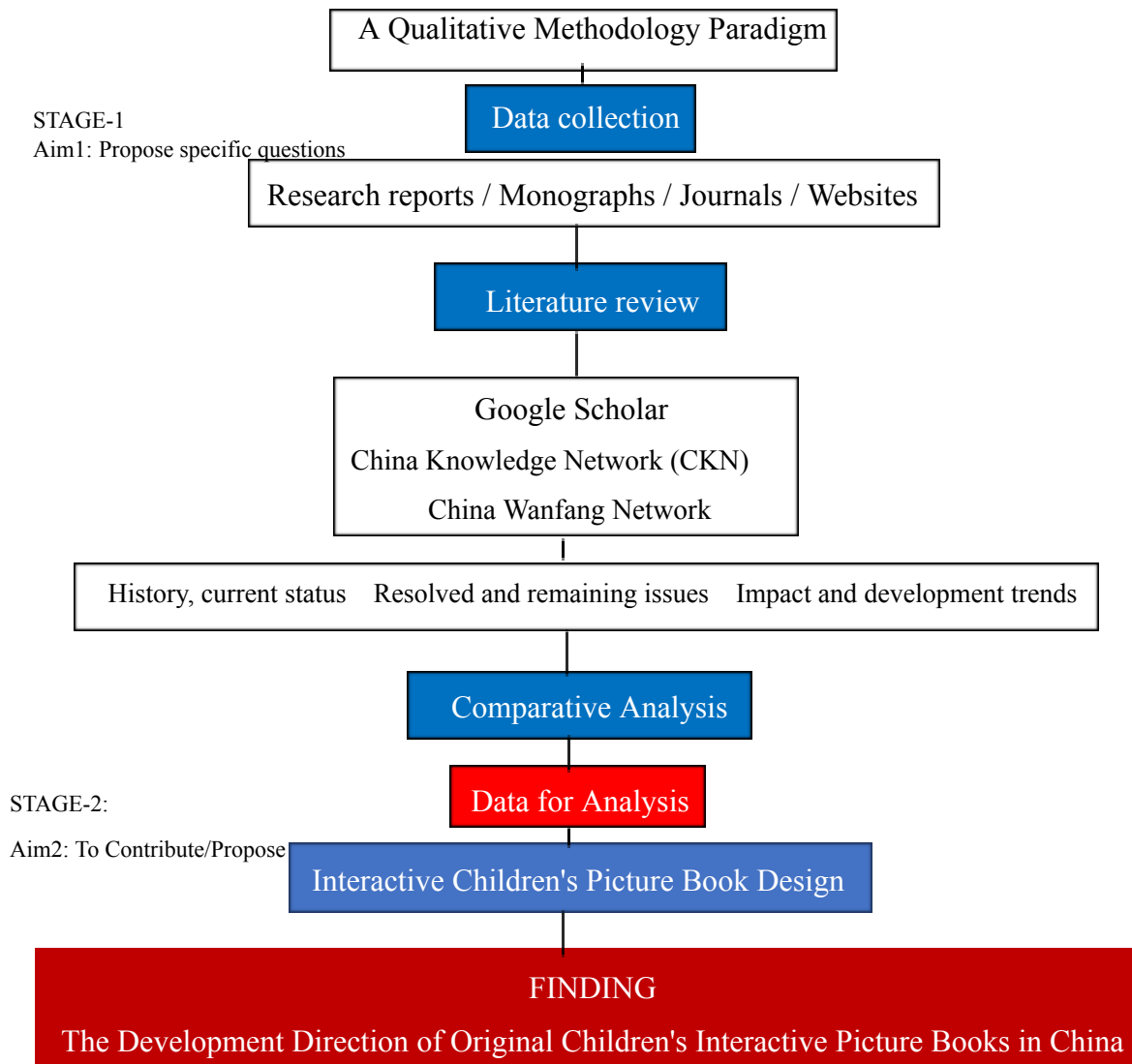


Figure 1. Suggested framework for Original Interactive Children's Picture Books in China

LITERATURE REVIEW

Zhang Meng and Lu Sihan introduced in the "Design Principles of Interactive Experience of Children's Picture Books" that interactive experience is in line with the characteristics of children's psychological development, how to meet the demands of children's sensory experience and the equipment requirements for perfecting children's interactive experience. In "Research on the Design of Interactive Picture Books

Based on Children's Education", Jiang Ye introduced the characteristics of children's physical and mental development, on this basis, the shaping of stories for specific reading groups, and the importance of interactive experience in children's picture books. In "Research and Application of Children's Picture Book Design Based on Interactive Experience", Liu Yuting expounded on the concept of "interactive experience", summarized the development status and trends of children's picture books at home and abroad, and proposed interactive experience suggestions for how to design in children's picture books. Although children's picture books in China have made significant progress in recent years, there are still some issues that need to be addressed. The main areas of concern include the following:

Lack of uniqueness: Some original children's picture books lack uniqueness in terms of storylines, themes, and artistic styles, leading to a phenomenon of homogeneity in the market. This makes it difficult for readers to distinguish between different picture books and limits the competitive edge of original works in the market.

Lack of high-quality production: Some original children's picture books suffer from production issues, such as poor printing quality and weak binding. This affects readers' assessment of the book's quality and durability, casting a negative impact on the overall image of the picture book.

Lack of marketing and promotion: Even if there are some excellent original children's picture books, the lack of effective marketing and promotion means that many readers may not be aware of their existence. Insufficient exposure and limited promotional channels restrict the market influence and sales volume of original picture books.

Addressing these issues requires collaborative efforts from various stakeholders in the picture book industry, including authors, illustrators, publishers, bookstores, and relevant institutions. By focusing on uniqueness, enhancing production quality, strengthening marketing and promotion, and promoting industry collaboration, we can truly improve the development of original children's picture books in China and enhance their competitiveness in the market.

PURPOSE AND SIGNIFICANCE OF THE RESEARCH

Children's picture books, as an essential cultural and entertainment product in modern families, have the potential to cultivate an interest in reading and habits and expand knowledge and cognition. Through reading and appreciating picture books, children can enter a rich and colourful fictional world, freely explore and create. Children's picture books are an important tool for promoting comprehensive child development. Books can develop capabilities of young age children in imagination, language, and improve their cognitive abilities. The related book must be in excellent and fantastic design (Gilang et al., 2017). Interactive children's picture books, on the other hand, strive to explore more humanised, interesting, and forward-thinking design formats. They propose new design concepts to enhance the efficiency of children's picture book usage for young children, allowing children to spontaneously and joyfully enjoy their reading time when engaging with picture books. A child, the act of reading can be a very interactive process. There are many books published that encourage the young reader to interact with the printed book and to experience and explore the narrative of media in a deeper way (Timpany & Vanderschantz, 2012). How can we better integrate interactive forms into children's picture books and reflect Chinese characteristics? How can we utilise modern technology, craftsmanship, and new materials to assist in the interactive design of children's picture books, thereby enhancing children's reading experience? Many questions require children's picture book designers to carefully explore and uncover the possibilities for multidimensional innovation. The primary purpose of designing interactive children's picture books is to provide a participatory and engaging reading experience through interaction between the readers and the books. The research objectives of this paper are as follows:

By incorporating interactive methods that engage multiple senses such as sight, hearing, smell, taste, and touch, children can actively participate in the storylines and activities, thereby enhancing the joy of reading. Stimulating multiple senses provides a richer and more comprehensive reading experience. The design of interactive forms stimulates children's creativity and aesthetic sense. By engaging in interactive activities, children are encouraged to explore and think while reading, fostering their manual

dexterity and problem-solving abilities.

During shared reading between parents and children, when parents actively participate in the interactive activities of picture books, they can jointly explore, discuss, and discover the mysteries within the books. This promotes a harmonious parent-child relationship. Interactive picture book design can convey educational content subtly while providing entertainment. Through interactive activities, basic concepts, skills, and values can be taught, such as numbers, shapes, colors, and emotional expression. This integration of entertainment and education in design can promote children's learning and development.

Interactive picture book design creates interactive experiences with children, and these experiences often increase children's memory and emotional connection to the books. By engaging in interactive activities, children are more likely to remember storylines and the content of picture books, forming positive emotional experiences.

Picture books are like Pandora's box for children, full of mystery and excitement. The visual imagery presents vast and boundless landscapes alongside rich and enchanting close-ups of intricate details. The story content, conveyed through simple text descriptions, expresses profound life philosophies. Each illustration in a picture book is not merely a flat composition; it conveys a wealth of rich information and presents readers with a three-dimensional and diverse reading space (Wang et al., 2023). The basic principles of an effective children's book need to be implemented by all designers in order to ensure engagement and interaction. These include standards of illustration, appropriate text and storyline, moral of story and relation to the child and the real world. In turn, the inclusion of physical and intellectual enhancements within the book promote a greater level of interaction and engagement from the parent and child (Wright, 2015).

Many researchers have found that the innovation of interactive children's picture books aligns with and meets the developmental needs of the contemporary children's book market. This reading approach closely aligns with children's play psychology and has a positive impact on the adaptability of original children's picture books in the Chinese market. The preference of preschool children for interactive traditional paper books has long been proved (Polyzou et al., 2023). The design significance of interactive children's picture books is primarily as follows:

Enhancement of technological innovation: With the continuous advancement of technology, interactive children's picture books have gradually incorporated new techniques, special materials, and interactive media. Researching the development trends and technological innovations in interactive children's picture books can drive the progress of the children's entertainment and educational field, providing children with more diverse and innovative learning experiences.

Increasing reading interest: Picture books with interactive elements can enhance children's engagement and interest, making the reading process more enjoyable and interactive. This can be achieved through various interactive actions such as page flipping, dragging, pulling, and touching. Additionally, the use of diverse materials such as mirrored paper, fabric, plastic, and more can further enhance the interactive experience.

Enhancing market competitiveness: By incorporating interactive elements and technological innovations, unique and captivating content and designs can be created for picture books. These innovations can attract more consumers and differentiate them from traditional static picture books, thereby enhancing market competitiveness.

THE CONCEPT OF INTERACTIVE PICTURE BOOKS

Currently, the domestic children's book market in China is categorised in a clear and refined manner to better adapt to market demands and facilitate customers in improving their purchasing efficiency. Various classification methods are used for picture books in China, including categorization based on "function,"

"media," "content," "packaging," and more. The specific classifications are as follows:

Table 1. Types of children's picture books

Category "Function"	Emotional management	"Good Talk" by Cristina Tèbar	"I Fell into the Vacuum Cleaner" by Melanie Watt
	Popular science encyclopaedia	"Little Science Explorers" by Jean Dupont	"A Brief History of Time for Kids" by Liu Fanke
	Humanities and History	"The Amazing Inventions and Discoveries" by Sunlight Trio	"World War II: Classic Battles on Hand-Drawn Maps" by Yangyangtu
	Cognitive learning	"Unveiling Garbage" by Anita Gainey	"Trash Sorting Sticker Game Book" by Xiao Dou Children's Books
	Habit forming	"Don't Cry, Don't Cry" by Jeanne Ashby	"The Little Bear Who Doesn't Brush His Teeth" by Světlana Týnová
	Self-protection	"When I Feel Kind" by Tracy Moroney	"Children's Safety Education and Prevention Picture Book (Hardcover)" by Li Hang
Category "Media"	Pop-up picture book	"Our Bodies" by Edlyn Van	"Our China" by Happy Childhood
	Audiobook	"Usborne Sound Books: The Nutcracker" by Fiona Watt	"Nursery Rhymes" by Zhang Yan
	Odour	"Come, Smell the Taste of Fruits" by Mary Delrost	"Smell the Scents of Nature" by Mary Delrost
	Organs	"Changing Teeth Book" by Ivona Hatonska	"The Zipper Book" by Fhiona Galloway
Category "Content"	Family	"Hug Hug" by Jazz Apollo	"Big Big, Small Small" by Zhong Yu
	Friendship	"I Have Friendship for Rent" by Fang Suzhen	"Little Red and Little Pink" by Tatsuya Miyanishi
	Life Education	"Spring for the Little Dog" by Makiko Watanabe and Kaya Doi	"Unveiling Life" by Liu Baoheng and Beishi Guo
Category "Packaging"	Hardcover	"Guess How Much I Love You" by Sam McBratney	"The Crocodile Who's Afraid of Dentists" by Gomis Tarō
	Paperback	"Dinosaur by Miyanishi Tatsuya" by Tatsuya Miyanishi	"The Fox Who Eats Books" by Francesca Billman
	Aliens	《My Suitcase: A Fun Book of Travel》 by Margie & Jimbo	"Oh No, Grandma's Little Cat Is Lost Again!" by Florl Lied

Many researchers in the field of children's picture books have provided definitions for "children's picture books." For example, Taiwanese picture book design master He Guangcai states that a "picture book" is generally a book that uses a series of illustrations to express a story or a theme that resembles a story (Wang, 2020). The book "Children and the School of Picture Books" written by the Japan Society for the Study of Children's Books recognizes that in summarising the definition of picture books, their content, presentation, and bookmaking are primarily designed for children (1988). Canadian renowned children's literature critic Perry Nodelman points out that picture books contain at least three types of stories: the story told by the text, the story suggested by the illustrations, and the story that emerges from the combination of both (Wu, 2019). No matter which country the researchers are from, their definitions are inseparable from three subjects: children, words, and pictures.

Interactive children's books, on top of the three core elements of children, text, and illustrations, incorporate modern technological techniques to integrate richer forms or diverse materials. This transformation enhances the playfulness, visual appeal, interactivity, and other aspects of children's books. By incorporating modern technology, interactive children's books offer a more engaging and interactive reading experience for children. It is a form of picture book that actively encourages children to engage with the story through interactive elements. It goes beyond traditional reading materials and provides a participatory and interactive reading experience for children. The concept of interactivity in books was

first expressed in Lü Jingren's book "The Art of Book Design." Lü Jingren emphasised the interaction between the designer, the book, and the reader. It not only focused on creating the physical form of the book but also aimed to engage readers in the reading process, fostering communication and interaction. American psychologist Dewey also proposed the concept of "learning through play and playing through learning," elucidating the idea that reading can become more enjoyable and meaningful through interactive elements and participatory reading experiences.

In fact, as early as the 13th century, a British monk named Matthew Paris, in order to solve the cumbersome data query problem, combined religious festival dates with a rotatable paper disk, pioneering the incorporation of mechanisms into books. This act had a significant impact on the subsequent development of book design and marked the beginning of interactive design between humans and books. In the 18th century, Robert Sayer, an Englishman, introduced the concept of "lift-the-flap" in book design. He added small doors, windows, or tabs that could be lifted on the pages of books, allowing readers to explore hidden images or text beneath them. This design element became popular in the field of children's picture books. In the 19th century, the British Dean and his son designed the techniques of "pumping, pulling, and moving". In the 20th century, Blue Ribbon in the United States pioneered the concept of a pop-up book, the carousel style created by Lothar Meggendorf, a paper art master in Munich, Germany, and so on. The above interactive forms are still used in the design of children's picture books.

When children read, they engage in subjective imagination and divergent thinking by extrapolating common objects from the illustrations and story content. They have the ability to construct mental images that go beyond the actual pictures they see. For example, they might imagine a woman's dishevelled hair as a waterfall, a bowl as a hat, or a banana as a telephone. The design of interactive elements in reading can satisfy children's need for fresh, interesting, and imaginative reading experiences.

THE WAY TO REALISE THE INTERACTIVE FORM DESIGN OF CHILDREN'S PICTURE BOOKS

The development of movement is the foundation for the development of cognitive abilities. Each new movement development provides children with a new way to explore and acquire knowledge. Professor Lu Jingren once stated in "Transition from Bookbinding to Book Design Concepts" that an ideal book should embody the beauty of contrast and harmony. Harmony creates a space for readers' spiritual needs, while contrast creates a stage for the pleasure of the five senses: visual, tactile, auditory, olfactory, and gustatory (Yang, 2016). In the mediaeval era, the prominent Czech educator Comenius proposed in his work "The Great Didactic" that objects themselves or their representative images should be presented in front of students as much as possible, allowing them to see, touch, hear, and smell (Zheng et al., 2022). Interactive children's books capture children's attention through various sensory stimuli, including visual, auditory, and tactile elements. They can feature 3D designs, sound effects, stickers, touchable surfaces, and more. Interactive books can allow children to actively construct an interactive story plot, where their choices, decisions, or actions influence the development and outcome of the story. They can also incorporate touch-sensitive sound buttons or connect with smart devices. Researchers have classified interactive children's books into several major categories, including:

Changes in appearance and design:

The appearance and design of contemporary books have evolved from traditional and square forms to various shapes. There are no specific rules or definitions regarding the appearance and design of children's books, as they can take on any shape. Designers innovate the appearance of children's books based on the content of the picture book stories, making them visually appealing. Compared to traditional square-shaped books, the variations in the appearance of children's books can enhance the atmosphere of the story, and convey different emotions and imagery. It can also help them stand out in a competitive market and leave a lasting impression on readers.

For example, in the case of Floortje Lodeizen, the winner of the Golden Paintbrush Award in the

Netherlands, her picture book "Oh No, Grandma's Little Cat is Missing Again!" tells the story of a grandma whose black cat goes missing. Worried and desperate, Grandma goes door to door in search of the cat, while the little black cat is off having a thrilling adventure outside. The designer has crafted the appearance of the book to resemble a house. When the book is opened, each page is interconnected, cleverly combining scenes together. Visually, it transforms from a house into a Dutch-style street, creating a cohesive and immersive experience. The interior pages feature cutouts on the rooftops, allowing readers to peek through and glimpse scenes on the other side, creating a magical sense of empathy. It provides an immersive experience for children while reading as if they are not just following the grandmother's search for the little black cat, but also actively assisting her in finding it. This design element encourages children to adopt a perspective-taking approach as they explore the book.

This picture book showcases a unique artistic style and uses "gritty" colours to present a story full of childlike charm. Humour is cleverly woven into the details, offering plenty of things to search for and discover.



Figure 1. Oh No, Grandma's Little Cat is Missing Again!
(Source: <https://item.jd.com/12953820.html>)

For example, the picture book "Made with Love: Pizza!" by Leia Redmond can be described as both a children's book and a "play pretend" toy. Every child has a "kitchen dream" and is always curious about and eager to use the tools used by adults. From the appearance of this picture book, which features a pizza-shaped design, it is evident that it presents the specific step-by-step process of making a pizza on its pages. With each flip, new toppings appear on the pizza until, finally, a delicious and steaming hot pizza covered in a variety of tasty ingredients is completed. During the reading process, children not only can imagine themselves as skilled chefs but also learn about the actual steps and methods involved in making a pizza. It allows them to unleash their imagination while also gaining knowledge.



Figure 2. Made with Love: Pizza!
(Source: <https://item.jd.com/10074993273120.html#none>)

Changes in the three-dimensional aspects of the inner pages:

As early as the 19th century, the Raphael Tuck & Sons company introduced the technique of adding three-dimensionality to the inner pages of books, which was used in the field of children's literature. With the advancement of technology and people's expanded vision, the forms of three-dimensionality have become increasingly diverse. Examples include carousel-style pop-up books, six-pointed star carousel books, cross-shaped carousel books, theatre-style pop-up books, and so on. The variation in three-dimensional form refers to the transformation of a two-dimensional page into a three-dimensional shape through the actions of children flipping, folding, and so on. By employing three-dimensional structures and kinetic effects, the interactivity and amusement of reading can be enhanced. It adds a sense of depth and realism to the narrative, allowing readers to experience more lifelike and immersive visual effects. the pop-up book is a fitting form for investigating material culture because there is hardly any book form apart from pop-ups that best manifests its materiality to children. (Liu, 2019).

For example, the picture book "Helping Mr. Croc" by Jo Lodge, a renowned children's book author and paper engineering designer. This book features a clever, sociable crocodile as the main character and portrays various everyday life situations with its friends. It covers multiple aspects such as understanding time, developing habits, and achieving personal growth. The book has a playful art style, and its inner pages are filled with clever interactive mechanisms such as folding pages, sliding elements, rotating parts, and more. These multiple interactive features engage children in a variety of ways, adding to the overall enjoyment of the book. These interactive mechanisms simulate the movement, transformation, or actions of objects and characters, accurately and vividly portraying the dynamic effects. They help cultivate children's observation skills and problem-solving abilities, as well as promote their hand-eye coordination and imaginative development. The book has been translated into 18 languages and published worldwide, with some series being shortlisted for the Sheffield Children's Book Award in the UK.



Figure 3. Helping Mr. Croc
(Source: <https://item.jd.com/13071805.html>)

For example, the picture book " My little emotional monster " by Anna Llenas explores the theme of children's emotions in a unique way. Through adorable monster characters and beautiful illustrations, it helps children understand and express their emotions. One of the highlights of this picture book is its interactive design. The use of paper-cutting art and V-fold paper techniques allows for the full display of the overall environment and grand scenes. When children open the book, they are immediately captivated by the visual impact it creates. Children can vividly experience the changes in emotions, making the abstract concept of "emotions" tangible and visible. With the help of other auxiliary mechanisms, children can manipulate these mechanisms to change the expressions or postures of the little monsters, simulating different emotional states.

Through clever graphic design, children learn to recognize and embrace various emotions and learn how to express and manage them. Overall, "My Monster of Emotions" is an interactive and educational children's book that helps children understand and navigate their emotions while providing a warm and enjoyable reading experience.



Figure 4. My little emotional monster
(Source: <https://item.jd.com/12708146.html>)

CHANGES IN MATERIAL

More and more materials are being used in children's books. For example, some books incorporate plastic or rubber materials as part of their pages. These materials can be used to create windows or transparent layers, adding visual effects and interactivity. Fabrics can enhance the texture and tactile experience of the book, and they can also be used to create touchable elements or book covers. Plush or felt materials can be used to add texture and a three-dimensional effect, often utilised in creating textures and tactile sensations for characters or animals. Advanced printing technologies can also be used to create timely and innovative designs on paper, transforming them into interactive elements. Compared to stickers, paper magnets are more durable and offer a variety of shapes and designs, providing a playful and versatile experience. The use of these materials can bring rich visual and tactile experiences to children's picture books. They can enhance the interactivity, durability, and artistic value of the books, making the reading process more engaging and captivating.

For example, the picture book "Barney the Bunny," written by Emma Goldhawk and illustrated by Jonathan Lambert, won the Sheffield Baby Book Award in 2011. The story revolves around Little Nutbrown Hare getting ready for bedtime. The unique aspect of this book is the incorporation of rabbit hand puppets into the design. These hand puppets can rotate 360 degrees, allowing children to interact with the characters and engage in imaginative play while reading the book. The inclusion of the rabbit hand puppets in the book allows for various possibilities in terms of behaviour and character changes. Parents can operate the puppet, or they can let the children take control and manipulate the movements of the little rabbit. This brings about a greater sense of interaction and engagement with the character. Parents and children can collaborate, improvise, and act out scenes together, fostering social skills, creativity, and hand-eye coordination in children. It adds an extra layer of enjoyment and interactive play to the reading experience. Integrating the form of hand puppets into picture books not only makes the story vivid and interesting, but also stimulates children's various senses, creates a good environment for language training, and allows children to exercise their language ability and improve their responsiveness in practice.



Figure 5. Barney the Bunny
(Source: <https://item.jd.com/13101468.html>)

For example, the picture book "Wind-up Ladybird," written by Harry Styles and illustrated by Fiona Watt, tells the story of an adorable ladybird that goes to places like the garden and pond to chat with its insect friends. The biggest highlight of this picture book is that it features the ladybird protagonist as a tangible, movable, and interactive toy. By turning the wind-up mechanism on the ladybird toy, it can come to life and move around. Furthermore, within the pages of the book, there are tracks set up in each scene where the ladybird can move around the garden and between the ponds. By combining motion with still images, the book's clever design and engaging interactive format allow children to explore and discover hidden details within its pages.



Figure 6. Wind-up Ladybird
(Source: <https://item.jd.com/10025653020120.html>)

SUMMARY AND RECOMMENDATIONS

As an important companion for childhood education, picture books have a significant impact on helping children in their future learning and development, shaping their values, and promoting positive behavioural norms. Reading goes beyond the act of reading itself; it can be seen as a holistic development of moral, intellectual, and aesthetic abilities. Through reading picture books, children learn to observe, explore, and engage in hands-on experiences, which in turn help them develop skills such as critical thinking, problem-solving, logical reasoning, and creative thinking. They learn to think, analyse, and make connections, fostering their cognitive development and enhancing their overall learning abilities. Indeed, children's reading promotes not only academic knowledge and skills but also shapes their holistic development in social, emotional, and cognitive aspects. Regarding the design of interactive children's books, researchers have put forth the following recommendations:

Ease of operation and durability: Taking into account children's age and skill levels, ensure that interactive elements are easy to operate and understand. Use large buttons, pull tabs, or sliders that are convenient for little hands to manipulate. Additionally, choose durable materials and binding methods to ensure that the book can withstand frequent interactive use by children.

Engaging interactive elements: Design engaging and captivating interactive elements to stimulate children's curiosity and engagement. This can include actions such as flipping pages, pop-up elements, flip patterns, puzzles, and more. Ensure that the interactive elements align with the story plot and enhance the storytelling experience and enjoyment.

Repeatability and exploratory nature: Design interactive elements in the book that allows children to engage in repeated operations and explorations. This way, they can discover new details and interactive effects with each reading, increasing the longevity of the book's appeal and their desire to revisit it. In general, the design of interactive children's picture books should emphasise clear and concise instructions, diverse interactive forms, the integration of story and interactivity, visual appeal, interactivity, repeatability, safety, and durability, as well as fostering imagination and creativity. These design elements can provide children with engaging, interactive, and meaningful reading experiences, promoting their learning and development. This study has its limitations, and it is hoped that future research will delve deeper and apply the findings in practical ways.

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