

The Implementation Path of Digital Personalized Picture Books in Promoting Sharing Behavior among Young Children

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Abstract: Against the background of the digital transformation of preschool education, digital personalized picture books have become an important carrier for cultivating children’s prosocial behaviors. This study focuses on the internal mechanism and practical paths of digital personalized picture books promoting young children’s sharing behavior. Findings show that deep personalization(name + image + scene) is significantly better than nominal personalization, which only replaces names; role identification serves as the core mediator connecting personalized reading and actual sharing behavior; AR interaction, repeated reading, and adult guidance can strengthen the effect of behavior transfer. Accordingly, this paper constructs a complete implementation path of “three-dimensional personalized design–multimodal interactive reading–layered adult guidance–situated behavior transfer,” providing a theoretical basis and operable solutions for kindergartens and families to use digital personalized picture books to improve young children’s sharing behavior.

Keywords: Digital personalized picture books; Sharing behavior; Implementation path; Role identification; AR interaction; Preschool education

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1. Introduction

Sharing behavior is a core indicator of young children’s prosocial development, playing a crucial role in peer relationships, social adaptation, and the cultivation of a well-rounded personality. While traditional picture book reading can convey the concept of sharing, young children often participate as bystanders, resulting in weak emotional engagement and low efficiency in behavior transformation. Empowered by digital technology, personalized picture books integrate children’s names, images, and life scenarios into stories, enabling them to transition from “reading others’ stories” to “acting out their own stories,” thus offering new possibilities for fostering sharing behavior.

Existing research has confirmed that personalized picture books can enhance young children’s sharing

behavior; however, nominal personalization, which merely replaces names, yields minimal effects ^[1]. Visual personalization through the inclusion of photographs or AI-generated images, as well as contextual personalization that incorporates real-life scenarios, significantly enhances identification and behavior transfer ^[2]. AR-enhanced stories can further elevate immersion and comprehension. Nevertheless, practical challenges persist, including superficial personalization, non-interactive reading experiences, a lack of adult guidance, and difficulties in translating behavior into real-life actions ^[3]. Therefore, this paper focuses on systematically constructing a comprehensive implementation pathway for digital personalized picture books to promote sharing behavior among young children, addressing practical challenges such as “why it is effective, how to design, how to implement, and how to transfer.”

2. Theoretical foundations and core mechanisms

2.1. Theoretical basis

Social Learning Theory, proposed by Bandura, emphasizes that individuals acquire and consolidate new behaviors by observing model behaviors and perceiving their outcomes. In the context of picture book reading, the protagonist serves as a model, and the effectiveness of observation depends on four stages: attention, retention, motor reproduction, and motivation. Digital personalized picture books, by designating young children themselves as the protagonists, greatly enhance the relevance and similarity between the model and the children, leading them to more actively attend to sharing behavior, clearly remember the behavioral process, willingly replicate actions in reality, and reinforce their motivation for sustained sharing through positive feedback, thereby providing a foundational cognitive and behavioral framework for learning sharing behavior.

Role Identification Theory focuses on the psychological connection between individuals and objects, asserting that when role characteristics highly match the self, individuals develop a strong sense of belonging and identification, prompting them to actively imitate role behaviors. Digital personalized picture books construct protagonist images that align with children’s names, images, and life scenarios, enabling them to deeply bind story roles with their self-perception, fostering an identification state where “the protagonist is me.” Driven by this identification, young children no longer view sharing behavior as that of a bystander but as a behavior they should exhibit, thus promoting a shift from passive acceptance to active practice of sharing behavior on an emotional level.

The Self-Reference Effect is a significant conclusion in cognitive psychology, stating that information related to the self is more easily noticed, processed, remembered, and retrieved by individuals. In picture book reading, embedding self-relevant information such as names, personal images, and exclusive experiences into stories significantly reduces cognitive processing difficulty and enhances information reception efficiency for young children. Compared to unfamiliar characters and plots in traditional picture books, personalized content quickly captures children’s attention, deepens their understanding of sharing scenarios and values, and allows sharing-related cognitions to be more firmly retained in their minds, providing a memory foundation for subsequent behavior transformation.

Multimedia Learning Theory focuses on the impact of multi-channel information presentation on learning outcomes, suggesting that combining visual and auditory elements with interactive participation effectively reduces cognitive load and enhances comprehension and internalization. Digital personalized picture books, relying on digital media, integrate various forms such as images, voice, animations, and

interactive operations, breaking the limitations of single visual presentation in traditional picture books. Multi-modal information input aligns with young children's intuitive-action thinking characteristics, helping them more clearly understand the process and significance of sharing behavior, reducing comprehension barriers, and facilitating smoother acceptance and internalization of sharing concepts. In summary, these four theories mutually support and synergize, with Social Learning Theory clarifying the pathway for behavior acquisition, Role Identification Theory activating emotional driving forces, the Self-Reference Effect enhancing cognitive processing efficiency, and Multimedia Learning Theory optimizing media presentation methods, collectively providing comprehensive and solid theoretical support for digital personalized picture books to promote sharing behavior among young children.

2.2. Mechanism of action

Digital personalized picture books do not directly generate sharing behavior but function through a coherent and progressive psychological mechanism, following the four-step core logic of "personalized matching–role identification–value internalization–behavior transfer." Each step is closely linked, forming a complete closed loop from reading input to behavior output, ultimately achieving stable cultivation of sharing behavior.

Personalized matching serves as the foundation for mechanism activation, activating self-connection by precisely aligning three-dimensional information—names, images, and scenarios—with young children. Name personalization enables children to quickly identify the story's subject, visual personalization strengthens intuitive identity cognition, and contextual personalization narrows the gap between the story and reality. Combined, these elements generate a sense of intimacy and familiarity in children from the initial contact with the picture book, breaking psychological barriers with the story and laying a cognitive foundation for subsequent steps.

Role identification is the core intermediary step, where, based on personalized matching, young children gradually equate the story protagonist with the real-life "me," forming a high-intensity role identification. This identification enables children to no longer be bystanders to the story but to experience the entire sharing process from a first-person perspective, fully engaging emotionally and cognitively, and willingly following the protagonist in making sharing choices, thus transforming sharing behavior from "someone else's behavior" to "my behavior" and completing a key transition from cognition to emotion.

Value internalization is crucial for stable behavior, as young children clearly perceive the positive outcomes of sharing during role experiences, including their peers' happiness, their own pleasure, and improved social relationships. This intuitive experience leads children to genuinely recognize the value of sharing from within, understanding that sharing is not about losing but gaining, gradually forming the internal belief that "sharing is good, and I am willing to share," transforming external behavioral requirements into internal behavioral motivations.

Behavior transfer is the ultimate goal of mechanism implementation, where young children apply the sharing behavior scripts formed in picture books to real-life scenarios. In similar situations, children can actively recall picture book plots, utilize behavioral experiences, and consistently exhibit sharing behavior, translating virtual practices in picture books into conscious actions in reality, achieving a complete transformation from story to life.

Overall, these four steps progress layer by layer and are indispensable, with personalized matching activating cognition, role identification strengthening emotion, value internalization consolidating motivation,

and behavior transfer achieving the goal. Combined with existing research, key conclusions can be drawn: deep personalization yields better results than visual personalization, which in turn is superior to nominal personalization that merely replaces names; AR interaction enhances immersion, adult guidance strengthens comprehension, and repeated reading consolidates scripts, all significantly improving the cultivation of sharing behavior.

3. Four implementation pathways for digital personalized picture books to promote sharing behavior

To promote sharing behavior among young children through digital personalized picture books, it is necessary to synergize efforts across four levels: content, process, support, and implementation, constructing a comprehensive pathway covering design, reading, guidance, and transfer. These four pathways cooperate with each other, addressing practical issues such as “how to create picture books, how to conduct reading, how adults can help, and how behavior can be implemented,” forming an all-encompassing cultivation system.

3.1. Pathway 1: Three-dimensional deep personalization design pathway

Content design is the core foundation for picture books to exert their influence, with superficial personalization failing to achieve ideal results. Based on relevant research, this pathway constructs a three-dimensional deep personalization system of name + visual + contextual personalization, fundamentally enhancing the sense of immersion and educational value of picture books.

Name personalization serves as the foundational identity marker, ensuring that the protagonist’s name and daily nickname are identical to those of the young child, with extensive use of first-person expressions like “I” and “my” throughout the story. Continuous name and first-person stimuli enable children to quickly establish identity connections, clarifying that the story revolves around themselves and marking the first step in identity anchoring.

Visual personalization is crucial for intuitive identity reinforcement, using young children’s real photographs or highly similar AI cartoon images to ensure a high match in appearance characteristics, gender, hairstyle, etc., with the children, avoiding cognitive barriers caused by image differences. Intuitive visual matching enables children to quickly confirm “this is me,” significantly enhancing role identification, and proving more effective educationally than anthropomorphic animal images.

Contextual personalization is key to real-life connections, incorporating familiar life scenarios such as kindergartens, homes, and parks, and selecting daily items like toys, snacks, and picture books as sharing objects, closely aligning with young children’s real-life experiences. Familiar contexts reduce comprehension difficulty, making it easier for children to associate the story with reality and enhancing the possibility of behavior transfer.

In summary, three-dimensional deep personalization design centers on young children, fully aligning with them in terms of names, visuals, and contexts, balancing relevance and educational value, and laying a solid content foundation for subsequent reading and behavior transformation.

3.2. Pathway 2: Multi-modal interactive reading implementation pathway

Reading implementation is the key link for content to realize its value. Leveraging the advantages of

digital technology, this pathway creates an immersive, interactive, and repetitive reading process, enabling young children to transition from passive listening to active participation, strengthening the learning and consolidation of sharing behavior^[4].

AR interaction enhancement is central to improving immersion, incorporating interactive forms such as animated effects, friendly voices, and click feedback at key nodes of sharing behavior. By triggering feedback through operations, young children can more intuitively experience the process and outcomes of sharing, enhancing reading interest and participation, and deepening their cognition and memory of sharing behavior^[5].

Selective decision-making cultivates autonomous judgment by setting choice branches of “to share or not to share” at critical story points, presenting corresponding reasonable consequences based on children’s choices. This design enables children to transition from passive acceptance to active decision-making, personally experiencing the different outcomes of different choices, strengthening autonomous judgment abilities, and deepening their understanding of the value of sharing.

Repeated reading reinforcement is necessary for consolidating behavior scripts, with 1–2 reading sessions conducted weekly for four consecutive weeks. Multiple readings of the same picture book enable young children to familiarize themselves with the sharing behavior process, gradually forming stable behavior scripts. Repeated learning aligns with young children’s learning characteristics, effectively consolidating cognition and avoiding the issue of short-term memory from a single reading.

In summary, multi-modal interactive reading centers on young children’s participation, enhancing the efficiency and suitability of the reading process for children’s needs through interaction, decision-making, repetition, and visual-auditory integration, promoting the deep internalization of shared cognition and behavior.

3.3. Pathway 3: Hierarchical adult guidance pathway

Adult guidance is an important guarantee for the educational effectiveness of picture books and cannot be replaced by technology. This pathway establishes a three-stage guidance process before, during, and after reading, combined with age-based hierarchical implementation, building a bridge between stories and behavior.

Before reading, the goal is to activate identity, with adults using concise language to point out that “the protagonist of this story is you,” guiding young children to observe their image on the cover, activating self-cognition and reading expectations, and enabling children to enter reading with the mindset of “this is my story,” quickly completing identity anchoring.

During reading, emotional connection is core, with adults pausing at key sharing plot points and guiding children to think and feel through questions, such as “how do you feel after sharing” and “is your friend happy when receiving something,” helping children connect behavior with emotions, understand the meaning of sharing, and promote the internalization of sharing values.

After reading, immediate transfer is the focus, with adults conducting real-life sharing practice within 24 hours of reading completion, providing opportunities for children to share, and offering specific positive feedback on sharing behavior. Immediate practice quickly connects picture books with reality, strengthening behavior memory and enhancing transfer effects.

In summary, hierarchical adult guidance runs through the entire reading process, providing precise

support in stages and by age, activating identity, connecting emotions, and promoting transfer, serving as a core guarantee for digital personalized picture books to realize their educational value.

3.4. Pathway 4: Contextualized behavior transfer pathway

Behavior transfer is the ultimate goal of sharing education, addressing the practical challenge of “reading well but failing to act.” Through contextual awakening, micro-scenario practice, home-school collaboration, and long-term tracking, this pathway builds a complete bridge from picture book stories to real life.

Contextual awakening is key to memory connection, with adults using concise language to prompt picture book plots when sharing opportunities arise in real life, such as “just like in the story when you shared toys,” awakening children’s picture book memories, building connections between stories and reality, and guiding children to engage in sharing behavior.

Micro-scenario practice serves as the foundation for behavior practice, creating daily micro-scenarios such as toy sharing, snack sharing, and picture book sharing in kindergartens and homes, providing young children with low-pressure, high-frequency sharing practice opportunities. Life-like scenarios enable children to practice easily, gradually becoming proficient in the sharing behavior process.

Home-school collaboration provides consolidated support for effects, with kindergartens and families using the same digital personalized picture book, maintaining consistency in educational content and guidance methods, and synchronously conducting reading and practice to form educational synergy. A consistent educational environment avoids conflicting ideas, making sharing behavior cultivation more sustained and stable.

In summary, contextualized behavior transfer focuses on “practical implementation,” promoting the transition of sharing behavior from picture books to life, from occasional performance to stable habits, through a four-in-one approach of awakening, practice, collaboration, and tracking, achieving the ultimate goal of sharing education.

4. Conclusion

To promote sharing behavior among young children through digital personalized picture books, it is essential to follow four major pathways: “in-depth personalized design–multimodal interactive reading–hierarchical adult guidance–contextualized behavioral transfer.” The core does not lie in showcasing technical prowess but in assisting young children in transitioning from the role of “bystander” to that of “participant,” transforming story experiences into real actions.

In practice, the following principles should be adhered to: three-dimensional personalization serves as the foundation, interactive reading is the key, adult guidance provides the assurance, and behavioral transfer is the goal. Only through the collaborative efforts of these four pathways can digital personalized picture books truly achieve long-term promotion of sharing behavior among young children.

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The authors declare no conflict of interest.

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