Study on Creative Conceptualization and Content Construction of AI-enabled Rural Cultural Theme Bilingual Children's Picture Books

Yiyao Zhang[1] Shaoxia Zhan[2] Peng Mengyao[3]

[1,2,3] *School of Foreign Languages, Xuzhou University of Technology, Xuzhou, China*
[2]*Corresponding author.*

ABSTRACT

This study investigates the application of AI technology in the creation of bilingual children's picture books themed around rural culture. Rural culture constitutes an important component of China's outstanding traditional heritage, yet its transmission faces significant challenges. At the same time, demand for bilingual education among children is continuously rising, making bilingual picture books a vital educational tool. By leveraging AI's capabilities in data mining, content generation, and creative association, this research provides inspirational support for picture-book creation and constructs book content from three perspectives: selection of rural-cultural material, bilingual text composition, and integration of text and illustration. Corresponding strategies are proposed to address technical, cultural, and pedagogical challenges. Case-study analysis validates the effectiveness of the proposed methods, and the paper outlines future research directions, including deepening AI applications, strengthening interdisciplinary collaboration, expanding rural-cultural resources, exploring the fusion of internationalization and localization, and assessing social impact. The ultimate goal is to promote the dissemination of rural culture and the development of bilingual education for children.

Keywords: *AI technology, Rural culture, Bilingual children's picture books.*

1. INTRODUCTION

In today's digital era, the rapid development of AI technology has brought unprecedented transformation and opportunities to various fields. In education—especially early childhood education—AI has been highly beneficial. It not only offers personalized learning experiences but also stimulates children's interest through rich interactive formats. Simultaneously, the inheritance and development of rural culture encounter new challenges and opportunities. As an essential part of China's outstanding traditional culture, rural culture carries abundant historical memory and distinctive regional characteristics, exerting profound influence on children's value formation and cultural identity. However, under traditional educational models, the transmission of rural culture often suffers from limited resources and monotonous formats.

Bilingual children's picture books, which combine visual art with language learning, possess unique advantages. They convey knowledge in an engaging manner while fostering language abilities within a bilingual environment, thereby broadening children's global outlook. Digital picture books adopt diverse creation methods that blend modern digital technologies with the essence of traditional picture-book craftsmanship. The use of AI can swiftly generate story content and illustrations, enabling personalized picture-book production and automatically producing matching images based on user-selected styles, dramatically improving creation efficiency. Moreover, digital picture books go beyond static images and text, incorporating audio, video, animation, and other multimedia elements to greatly enhance interactivity and enjoyment (Zhang Jingyuan & Du Bing, 2025).

This study aims to explore the creative conceptualization and content construction of AI-enabled rural-cultural themed bilingual children's picture books. It analyzes how AI can optimize design, content presentation, and interactive experience to better capture children's

attention and improve learning outcomes. The study also examines how bilingual picture books can convey the core values and unique charm of rural culture, cultivating cultural identity and national pride among young readers.

2. DEMAND ANALYSIS FOR RURAL-CULTURAL THEMED BILINGUAL CHILDREN'S PICTURE BOOKS

2.1 Need for Rural‑Cultural Heritage Preservation

Rural culture, as a vital segment of China's outstanding traditional heritage, embodies rich historical memory and distinctive regional traits, encompassing traditional farming practices, folk arts, legends, natural landscapes, lifestyles, and social structures. These elements collectively form the unique allure of rural culture and play an irreplaceable role in strengthening national cohesion and cultural identity. However, rapid urbanization has posed numerous challenges: rural cultural activities have become hollowed-out rituals, lacking spiritual substance; there is an absence of widely accessible texts for intergenerational transmission, as noted by folklorist Liu Xicheng: "Most folk culture is passed down orally from person to person, enabling its continuation across generations" (Zhang Kelan & Wei Mingrui, 2023). Many rural cultural elements are being marginalized or risk disappearing altogether. Traditional crafts, folk arts, and oral narratives are fading due to a shortage of inheritors and dissemination channels. Moreover, conventional educational models offer limited resources and monotonous formats, making it difficult to attract the younger generation.

2.2 Demand for Children's Bilingual Education

With accelerating globalization, bilingual education has garnered increasing attention from parents and educators. Research shows that early exposure to a bilingual environment confers significant advantages in language acquisition, logical reasoning, and cross-cultural communication. Bilingual picture books, as tools that blend education and entertainment, effectively promote language development and cognitive abilities. Through bilingual picture books, children encounter two languages simultaneously during reading, enhancing the fun and interactivity of language learning. Rich illustrations and story content also help children grasp contextual and cultural nuances, improving language usage competence.

2.3 Market Demand Analysis

In recent years, China's children's picture-book market has expanded dramatically, reaching RMB 300 billion in 2023 with a compound annual growth rate exceeding 10%. Growing parental emphasis on early education and the widespread adoption of digital technologies have driven diversification, segmentation, and technological innovation within the market. AI applications—such as intelligent recommendation systems and AI-assisted reading—have elevated interactivity and enjoyment, boosting both child engagement and parental purchase intent.

The emergence of rural-cultural themed picture books has further increased demand for bilingual books with local cultural characteristics. Parents seek resources that enable children to learn foreign languages while appreciating and preserving their native culture, thereby strengthening cultural confidence. Educational institutions are also promoting local cultural inheritance, and rural-cultural bilingual picture books serve as valuable teaching resources that enrich curricula and improve instructional effectiveness. Additionally, with the rise of rural tourism and cultural promotion, such picture books can function as souvenirs and cultural ambassadors, expanding market opportunities.

3. INNOVATIVE CONCEPTUALIZATION OF AI-ENABLED RURAL-CULTURAL BILINGUAL CHILDREN'S PICTURE BOOKS

3.1 AI in Creative Inspiration Generation

As known, AI can mine and analyze vast amounts of rural-cultural data to extract representative cultural elements, narrative threads, and visual symbols. For example, AI can process folk legends, traditional festivals, and handicrafts from rural regions, identifying key themes and motifs that serve as sources of inspiration for picture-book creation.

When it comes to content generation and style imitation, generative AI models can produce coherent textual content and emulate specific artistic styles based on user-defined scenarios or topics. By setting a rural scene, AI can automatically generate dialogues, descriptions, and narrative flow, which can then be refined to align with the creator's intent. AI can also analyze the writing style of a particular author and generate text that mirrors that style, allowing creators to learn and incorporate literary techniques—e.g., analyzing Lu Xun's style to produce short stories with similar expressive qualities (Sun Yuxiu & Jia Shengnan, 2025).

What's more, AI can extrapolate from existing ideas to generate additional creative concepts. Inputting prompts such as "wisdom stories in rural culture" enables AI to produce multiple story ideas centered on wisdom, helping creators break through cognitive constraints and broaden the creative space.

3.2 Determining the Picture-Book Theme and Style

By analyzing rural-cultural datasets, AI can identify themes with broad appeal and educational value—such as traditional festivals, folk arts, or natural landscapes—and recommend those suitable for children's reading. AI can also align theme suggestions with bilingual education goals, proposing topics that connect with international cultures to enhance cross-cultural relevance.

In addition, the style exploration and innovation should be taken into account in that AI can examine successful picture-books to extract popular visual and narrative styles, providing references for creators to develop a distinctive aesthetic that fits rural-cultural themes. Combining modern design trends, AI can suggest innovative visual presentations—e.g., integrating illustration with digital art—to create a style that feels both contemporary and technologically advanced.

It is widely explored that AI can facilitate the blending of rural culture with modern and international cultural elements, producing works that resonate with today's global audience. By analyzing picture-books from diverse cultural backgrounds, AI can pinpoint cross-cultural motifs and propose integration points, enabling picture-books to both preserve rural heritage and attract a wider readership, thereby enhancing market competitiveness.

4. CONTENT CONSTRUCTION OF AI-ENABLED RURAL-CULTURAL BILINGUAL CHILDREN'S PICTURE BOOKS

4.1 Selection and Integration of Rural-Cultural Content

As for screening based on educational goals and children's cognitive levels, the picture book aims to cultivate children's awareness of rural culture, emotional identification, and related values such as respect for nature and preservation of folk customs. Considering developmental psychology, cognitive capacity, and reading ability, children often resist long blocks of text; prolonged reading can cause restlessness or fatigue (Huang Di, 2024). Consequently, the researchers select rural-cultural elements that match children's age and comprehension abilities, ensuring they are both understandable and engaging.

Then, systematic integration and arrangement of rural-cultural material should be considered, due to the reason that our team categorizes the screened cultural elements into thematic groups, each containing several related items, thereby forming a clear structure. By weaving these themes and elements into stories, the picture book achieves coherence and fun. The researchers adapt authentic rural life into vivid narratives, enabling children to better comprehend and experience rural culture. Following children's reading habits, the researchers order the content from simple to complex, concrete to abstract, familiar to unfamiliar, guiding them gradually toward a deeper understanding of rural culture.

4.2 Writing and Balancing the Bilingual Text

As for language workers, translation principles and methods should be carefully selected, as the bilingual text must accurately convey the semantic essence of rural-cultural elements, avoiding misinterpretation or cultural distortion. During translation, the researchers preserve the unique flavor and style of rural culture; for locally specific words or idioms, the researchers employ literal translation or footnotes, allowing children to sense the differences and charms between languages. Depending on the text's content and linguistic features, the researchers flexibly apply literal translation, free translation, amplification, or reduction, ensuring the bilingual version adheres to

linguistic norms while remaining smooth and natural.

Furthermore, semantic, cultural, and difficulty balance should be ensured, for the researchers meticulously verify the semantic correspondence between the two language versions, preventing ambiguity or bias when expressing similar concepts. The bilingual content fully showcases all aspects of rural culture, avoiding omission or over-emphasis caused by language differences. Both languages reflect respect for and transmission of rural culture, steering clear of cultural prejudice or one-sided interpretation. According to children's bilingual proficiency, the researchers calibrate language difficulty: the Chinese side uses simple, comprehensible vocabulary and sentence structures while sprinkling slightly challenging words to expand vocabulary; the English side aligns with typical children's English learning stages, selecting appropriate lexicon and grammar so that reading remains both challenging and enjoyable.

4.3 Integration and Presentation of Text-Image Content

As shown, leveraging AI drawing technology, the researchers generate images that embody rural characteristics and artistic style based on the theme and storyline. During illustration, the researchers emphasize detail to make the pictures vivid, realistic, and emotionally resonant. Using AI layout tools, the researchers arrange text and images thoughtfully. According to children's reading habits, the researchers organically combine text and visuals, achieving an aesthetically pleasing and harmonious page design. Font size, typeface, and color choices are coordinated with the illustrations to highlight the theme.

Then, it dawns on the match between text-image content and interactive design. It should be guaranteed that images and text are highly consistent in theme, plot, and emotion; images visually depict the textual description, while text supplements and explains the visuals, creating a reciprocal relationship that conveys the essence of rural culture. Interactive elements are embedded within the picture book to stimulate children's reading interest and participation. Such designs encourage active exploration of rural culture during reading, deepening comprehension and memory.

5. CHALLENGES AND COUNTERMEASURES IN AI-ENABLED RURAL-CULTURAL BILINGUAL PICTURE-BOOK CREATION

When it comes to technical challenges and countermeasures, AI drawing and translation technologies may experience lag or crashes, affecting production efficiency. To mitigate this, the researchers select a stable AI platform, perform regular software updates, optimize system configurations, and maintain backups to prevent data loss. Nevertheless, some unavoidable drawbacks persist: although AI-generated images are now more stable than before, they remain difficult to fine-tune after generation, unlike traditional hand-drawn illustrations that can be customized on demand (Zhu Jingwen & Ji Baitong, 2025). Additionally, AI-generated translations may contain inaccuracies; therefore, human proofreading and revision are required to combine AI efficiency with professional expertise, ensuring content accuracy.

Thus, accurate representation and transmission of rural culture is the concern. Certain field research in villages should be put forward, engaging with local residents to collect first-hand data, guaranteeing precise understanding of rural culture. The researchers consult folklorists, cultural scholars, and other experts throughout the creation process, vetting cultural elements for authenticity and heritage value. Multiple rounds of review ensure the picture-book meets cultural transmission standards, avoiding misreading or distortion.

Based on cross-cultural differences, diverse cultural elements should be blended skillfully within the picture book, using comparison and integration to help children recognize both differences and commonalities across cultures, thereby promoting cross-cultural communication. For locally distinctive rural elements, the researchers add detailed annotations and explanations, aiding children in grasping cultural background and meaning, reducing cultural gaps. From a multicultural perspective, the researchers showcase the diversity and inclusiveness of rural culture, encouraging children to respect and appreciate different cultures while reading.

6. CONCLUSION

This study examined the application of AI technology in the creative conception and content

construction of rural-cultural bilingual children's picture books. AI markedly improves creation efficiency and quality by intelligently generating images and text that precisely meet children's needs, thereby supporting rural-cultural inheritance and bilingual education. From theme selection and story-frame construction to creative technique deployment, the researchers present a systematic creative workflow that ensures the picture book is both educationally meaningful and highly attractive. By outlining strategies for selecting and integrating rural-cultural content, balancing bilingual text, and merging text with imagery, the researchers lay a solid foundation for high-quality picture-book production. Case analyses demonstrate the practicality and effectiveness of the proposed methods, offering a new exemplar for rural-cultural dissemination and bilingual children's education.

Thus, future work can be expanded in the following directions: deepening AI applications — continuously monitor advances in AI, such as more sophisticated image-generation algorithms and natural-language-processing techniques, to further enhance picture-book quality and efficiency; strengthening interdisciplinary collaboration — integrate insights from education, psychology, literature, art, and related fields to deepen understanding of children's cognition and learning patterns, making content more aligned with developmental needs; expanding rural-cultural resources — delve deeper into the diversity and uniqueness of rural culture, incorporating lesser-known elements to enrich the cultural depth of picture books; exploring international-local fusion — seek a balance between global appeal and local authenticity, disseminating Chinese rural culture while adapting to international aesthetic and cognitive preferences, thereby boosting global impact; and assessing social impact — conduct long-term evaluations of the picture book's effects on children, families, schools, and rural-cultural preservation, providing scientific evidence for optimizing creation and promotion strategies.

Through these prospects, the researchers anticipate that AI-enabled rural-cultural bilingual picture books will play an increasingly significant role in preserving rural heritage, advancing bilingual education, and fostering holistic child development, opening new pathways for children's literature and cultural industry growth.

ACKNOWLEDGMENTS

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