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Design and Practice of Kindergarten Thematic Curriculum from the Perspective of Scientific Transition from Kindergarten to Primary School

Wenting Li, Lingling Li

Sichuan Preschool Educators College, Mianyang 621000, Sichuan, China

Author to whom correspondence should be addressed.

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Abstract: The transition from kindergarten to primary school is a key link in improving the quality of preschool education. At present, kindergarten thematic curriculum faces the dual dilemma of "primary school tendency" and "insufficient transition" in implementing the transition from kindergarten to primary school. Taking "kindergarten-college cooperation" as the research background and the senior class thematic curriculum Graphic Kingdom: Amazing Made-in-Chinaas an example, this paper explores the design rationale and practical strategies of kindergarten thematic curriculum from the perspective of scientific transition from kindergarten to primary school. Based on children's life experience and existing cognitive level, with tangram as the carrier, the curriculum follows the principle of "de-primary-schoolization", transforms the perception of pictographic characters and mathematical graphic cognition into gamified, contextualized and operational thematic activities, and realizes scientific transition through horizontal integration and vertical progression, allowing children to "learn through play, learn through doing, and learn through life", effectively supporting children's preparation for school.

Keywords: Scientific transition from kindergarten to primary school; Kindergarten thematic curriculum; De-primary-schoolization

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1. Problem statement

The transition from kindergarten to primary school is a critical stage for children, affecting their adaptive ability and long-term development. In recent years, the Ministry of Education's Guiding Opinions on Vigorously Promoting the Scientific Transition from Kindergarten to Primary School clearly requires "adhering to two-way transition" and "systematic advancement". However, at present, kindergarten thematic curriculum faces a double dilemma in implementing the transition from kindergarten to primary school.

On the one hand, the "primary school tendency" still exists. Some kindergartens, in order to cater to

parents' demands, prematurely instill primary school knowledge through mechanical training, which violates children's learning laws. On the other hand, the problem of "insufficient transition" is equally prominent. Some teachers, worried about being labeled as "primary-schoolized", avoid teaching preparation content such as pre-writing and pre-reading, resulting in a lack of systematic penetration of the core experiences of primary school Chinese and mathematics in the curriculum, making it difficult for children to adapt after entering primary school. How to organically integrate the core experiences of primary school Chinese and mathematics into the kindergarten thematic curriculum, avoiding the "primary school tendency" while achieving a "scientific transition", is the core problem to be solved in this study [1].

This study takes the senior class thematic curriculum Graphic Kingdom: Amazing Made-in-Chinaas an example, and based on the previous research projects Practical Research on Breaking Through the Difficulties of Transition from Kindergarten to Primary School in Art Activities and Research on the Integration of Traditional Culture and Children's Art Curriculum, explores the design strategies and practical paths of kindergarten thematic curriculum from the perspective of scientific transition from kindergarten to primary school.

2. Design rationale: Gamified curriculum transformation starting from children's experience

2.1. Design concept: De-primary-schoolization, not "teaching" but "perceiving"

The design of this curriculum follows a basic judgment: the transition from kindergarten to primary school at the kindergarten stage is not "teaching primary school content", but allowing children to accumulate "pre-experiences" related to primary school learning through play and operation. As I pointed out in Practical Research on the Integration of Pictographic Characters into Children's Art Curriculum, children's thinking is mainly imagistic; pictographic characters originate from pictures and have visual and imagistic characteristics. Teachers can create gamified, operational and visual art thematic activities based on imagistic pictographic characters to stimulate children's interest in learning pictographic characters. This concept is equally applicable to this curriculum—transforming primary school Chinese and mathematics knowledge points into activity contents that children can perceive, operate and experience [2].

The design principles of this curriculum include: first, based on children's life experience, selecting familiar "Made-in-China" vehicles (cars, ships, submarines, airplanes, rockets) as the thematic thread; second, following children's cognitive laws, progressing week by week from near to far according to "ground → sea → air → sky"; third, using gamification, contextualization and operation as the main teaching methods, allowing children to "learn through play, learn through doing, and learn through life"; fourth, taking art activities as the entry point, naturally integrating pre-writing and pre-reading into the five major domains.

2.2. Chinese language connection: Taking pictographic character perception as the entry point, avoiding mechanical literacy

The literacy teaching in the first volume of Grade One of primary school starts with pictographic characters—texts such as Sun, Moon, Water, Fire and Mouth, Ear, Eye guide students to discover the rule that "Chinese characters are like pictures". In previous research, we have verified the feasibility of integrating pictographic characters into children's art curriculum. In Practical Research on the Integration of Pictographic Characters into Children's Art Curriculum, I summarized that pictographic characters have pictorial and imagistic

characteristics and share the same origin with painting. Through hands-on operation of interesting art tools and materials, children can not only learn art language but also stimulate interest in learning pictographic characters and traditional culture. Based on this, this curriculum takes pictographic character perception as the core method of Chinese language connection.

Each week, pictographic characters related to the weekly theme are presented, allowing children to perceive the evolution of Chinese characters through "drawing pictographic characters". For example, the first week's "car" theme corresponds to the character " 车 " (like an ancient carriage, with wheels, axles, and a carriage), and the fourth week's "airplane" theme corresponds to the characters " 飞 " and " 鸟 ". Children do not learn through mechanical memory and repeated writing, but rather "draw" pictographic characters in art activities, experiencing the rule that "Chinese characters evolved from pictures" in game contexts.

In the specific arrangement of language activities, the fourth week arranges for children to recite The Little Boat, accumulating reduplicated words such as "curved", "sparkling", and "blue"; the fifth week introduces a fragment of The Story of the Train, understanding the development of trains from steam locomotives to maglev trains. These contents are directly connected with primary school Chinese textbooks, but the processing method is not "learning texts" but "listening to stories, reading children's songs, and drawing". As I emphasized in my paper, the Guidelines for Kindergarten Education point out "using books, paintings and other multiple methods to arouse children's interest in books, reading and writing, and cultivate pre-reading and pre-writing skills", which is exactly the design basis for language activities in this curriculum.

2.3. Mathematics connection: Taking Tangram puzzle as the operational main line, avoiding mechanical training

Tangram is a traditional educational toy evolved from the ancient Chinese "Yan Ji", containing rich value in graphic cognition and spatial thinking. It is also an important operational material in the "Understanding Graphics (II)" unit of the second volume of Grade One mathematics in the People's Education Press. This curriculum takes the tangram puzzle as the core activity of mathematics connection, progressing week by week from simple to complex: Week 1 uses 4-5 pieces to make a car, Week 2 uses 5-6 pieces to make a ship, Week 3 uses 6-7 pieces to make a submarine, Week 4 uses 5-6 pieces to make an airplane (perceiving symmetry), and Week 5 completes comprehensive statistics.

This design corresponds to primary school mathematics knowledge points including: "Understanding Graphics (I)" in the first volume of Grade One, "Understanding Graphics (II)" in the second volume of Grade One, and "Classification and Organization". But each activity is not "teaching" these knowledge points, but allowing children to perceive graphic features and combination relationships in "piecing together and arranging" operations. The "Transportation Statistics" activity in Week 5 requires children to classify and count five vehicles according to "ground, sea, air, sky" and record them with a bar chart, directly corresponding to the "Classification and Organization" unit, but children experience the process of data organization in gamified "statistics" rather than mechanically doing statistics problems.

This design fully respects children's learning characteristics of "obtaining experience through direct perception, practical operation and personal experience", avoids the mechanical training of "primary school tendency", and accumulates rich "pre-experiences" for systematic learning in primary school [3].

3. Practical strategies: Horizontal integration and vertical progression of the five major domains

3.1. Horizontal integration: Seven domains around the same theme each week, deeply connected

This curriculum selects five "amazing Made-in-China" vehicles: cars, ships, submarines, airplanes, and rockets, progressing week by week from near to far according to the cognitive logic of "ground → sea → air → sky". Each week revolves around the same vehicle, with activities in health, language, society, scientific inquiry, mathematics, art, and music deeply connected.

Taking Week 4 "C919 Large Airplane" as an example, activities in various domains revolve around the core theme of "airplane": the health activity Airplane Flying lets children walk on a balance beam with arms extended horizontally, imitating "wing balance"; the language activity recites The Little Boat and uses "airplane is like..." to imitate metaphors; the social activity China's Airplane Is Amazing guides children to feel the achievement of "China's self-made large airplane"; the science activity observes the shape of airplane wings, fuselage, and tail; the mathematics activity uses tangram to make an airplane, perceiving left-right symmetry; the art activity collages an airplane and adds blue sky and cloud background, while drawing "飞" and "鸟" pictographic characters; the music activity sings Little Airplane and does flying movements with the music.

The advantage of this design is that children are exposed to the same theme repeatedly from different domains within a week, forming a three-dimensional cognition of "airplane"—they know that airplanes can fly (science), understand that airplanes are made in China (society), and can also draw airplanes with line drawing (art). Experiences in various domains support and reinforce each other, allowing children to naturally accumulate knowledge and experience related to the theme in life-oriented and gamified contexts.

3.2. Vertical progression: Adding new experiences and increasing difficulty each week

The core experiences of each domain follow the step-by-step path of "perception → understanding → inquiry → expression → creation". Taking a tangram puzzle in the mathematics domain as an example: Week 1 uses 4-5 pieces to make a car (perceiving graphic combination), Week 2 uses 5-6 pieces to make a ship (exploring graphic combination), Week 3 uses 6-7 pieces to make a submarine (perceiving combination and decomposition), Week 4 uses 5-6 pieces to make an airplane (perceiving symmetry), and Week 5 completes classification statistics (comprehensive application). The number of puzzle pieces increases from fewer to more, and graphic complexity moves from symmetrical shapes to multi-part combinations, with each week adding new experiences on the basis of the previous week.

The health domain also reflects progression: from running (car) to throwing (ship) to crawling (submarine) to balancing (airplane) to jumping (rocket), covering five basic movements comprehensively and differently each week, with movement difficulty increasing week by week. The social domain progresses from pride in "Chinese innovation" (car) to respect for workers (ship) to care for the PLA (submarine) to pride in "Made in China" (airplane) to yearning for aerospace technology (rocket), with emotional attitudes deepening layer by layer [4].

3.3. Natural penetration of pre-reading and pre-writing

This curriculum organically integrates pre-reading and pre-writing into language and art activities, but does not require children to write Chinese characters formally. In language activities, children perceive that "Chi-

nese characters evolved from pictures" through "drawing pictographic characters"; in art activities, children draw a " 车 " pictographic signature in a corner of their work, or draw a " 火 " pictographic character at the rocket flame position. One character per week, accumulating five pictographic characters in five weeks—车, 舟, 水, 鱼, 飞, 鸟, 火, 山 —these characters exactly cover the core pictographic characters in Grade One literacy teaching.

As I pointed out in Educational Support Strategies for the Formation of Children's Pre-writing Experience through Home-Kindergarten Co-education, the formation of children's pre-writing experience is based on respecting children's physical and mental development laws, creating a suitable environment to stimulate children's interest in pre-writing, and effectively supporting children's pre-writing in life and play. The Guidelines for Learning and Development of Children Aged 3-6 emphasize "allowing children to experience the function of text symbols in the process of writing and drawing, and cultivating interest in writing". The "drawing pictographic characters" activity in this curriculum is exactly the concrete practice of this concept—allowing children to have a positive and curious initial impression of "Chinese characters" before entering primary school, rather than fear or rejection.

4. Curriculum transformation based on children's life experience and existing experience

The design of this curriculum fully respects children's life experience and existing cognitive level, mainly reflected in the following three aspects.

First, theme selection is close to children's life experience. The five vehicles—cars, ships, submarines, airplanes, rockets—are arranged in the order of "ground → sea → air → sky", starting from the most familiar "car" (almost every family has one), to "ships" and "airplanes" that some children have ridden, to the mysterious but attractive "submarine", and finally to the "rocket" as the "ultimate dream", conforming to the natural law of children's cognition from near to far, from familiar to unfamiliar.

Second, activity design is based on children's existing cognitive level. Tangram puzzles start with 4-5 pieces and gradually transition to complete 6-7 piece puzzles, with difficulty synchronized with children's fine motor development level; pictographic character selection follows the principle of from simple to complex, starting with distinctive pictographic characters such as " 车 " and " 舟 "; ancient poems and famous quotes in language activities are mainly in the form of recitation and performance, without requiring memorization or understanding of deep meanings.

Third, the teaching process adheres to "learning through doing, learning through play". Each activity is centered on children's direct operation—piecing together tangrams, drawing pictographic characters, acting out nursery rhyme stories, doing science experiments. Children naturally accumulate experience through hands-on operation and personal experience, rather than passively receiving knowledge. This is exactly what the Guidelines for Learning and Development of Children Aged 3-6 advocate: "maximally supporting and satisfying children's need to obtain experience through direct perception, practical operation and personal experience"[5].

5. Effectiveness and reflection

5.1. Effectiveness at the design level

This curriculum was completed under the background of "kindergarten-college cooperation", and its value is

reflected in three aspects.

First, it realizes the gamified transformation of primary school knowledge experience. Primary school Chinese pictographic characters, Grade One children's song texts, primary school mathematics graphic cognition and classification organization are all integrated into thematic activities in ways that children can operate and perceive, without mechanical memory, without repetitive training, without "primary school tendency" teaching methods, but allowing children to accumulate experiences related to primary school learning through "playing with tangrams" and "drawing pictographic characters" [6].

Second, it continues the research results of previous projects. The design of this curriculum fully draws on the research findings of Practical Research on Breaking Through the Difficulties of Transition from Kindergarten to Primary School in Art Activities and Research on the Integration of Traditional Culture and Children's Art Curriculum—pictographic characters share the same origin with painting, and art activities have visual and imagistic characteristics, which can effectively stimulate children's interest in learning characters. The "drawing pictographic characters" activity in the curriculum is the direct transformation of this research result.

Third, it forms a replicable and promotable thematic curriculum framework. The structure of seven-domain horizontal integration and five-week vertical progression provides kindergarten teachers with clear curriculum design ideas. The core experience of each activity is annotated with the basis of the Guidelines for Learning and Development of Children Aged 3-6 and the connection points with primary school textbooks, facilitating teachers' understanding of "why it is designed this way" and "how to implement it scientifically" [7].

5.2. Reflections on follow-up research

This curriculum is currently at the stage of completed design and awaits implementation in cooperative kindergartens. In follow-up research, I will focus on the following questions: Does the activity design based on children's life experience truly fit the actual level of senior class children? Is the difficulty progression of the tangram puzzle reasonable? What difficulties did teachers encounter in actual operation? What are children's real reactions to drawing pictographic characters and tangram puzzles?

In addition, the transition from kindergarten to primary school cannot rely solely on the efforts of kindergartens; it requires two-way dialogue between kindergartens and primary schools. In the subsequent practical verification of this curriculum, I will also pay attention to primary school teachers' feedback on children's adaptation after entering school, in order to further revise the curriculum design and truly achieve the organic unity of "de-primary-schoolization" and "scientific transition".

6. Conclusion

Kindergarten thematic curriculum is an effective carrier for implementing scientific transition from kindergarten to primary school. The core experiences of primary school Chinese and mathematics can be integrated into senior class thematic curriculum through gamified, operational and contextualized methods, rather than mechanically teaching in advance. The key lies in respecting children's learning methods and cognitive characteristics—based on children's life experience, with play as the basic activity, allowing children to naturally accumulate "pre-experiences" related to primary school learning through "learning through doing, learning through play, and learning through life".

This curriculum takes tangram as the carrier, "Made-in-China" as the content thread, and pictographic character perception and graphic cognition as the connection points, designing a five-domain activity system of horizontal integration and vertical progression, striving to achieve "scientific transition" under the premise of "de-primary-schoolization". In follow-up research, I will further improve the curriculum design, promote its implementation in cooperative kindergartens, collect teaching feedback, and continuously optimize and iterate, providing practical reference for the development of thematic curriculum through "kindergarten-college cooperation" in higher vocational preschool education.

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Disclosure statement

The authors declare no conflict of interest.

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