

Exploration of Strategies for Cultivating Creativity in the Context of Curriculum Gamification during Kindergarten-Primary School Transition

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Abstract. Edward once stated, "Creativity is the most important human resource; without creativity, there is no progress." The China Basic Education Association has also emphasized in educational forums the importance of cultivating top-tier innovative talents. Such talents rely heavily on the stimulation of students' innovative thinking and the development of creativity. Currently, some kindergartens exhibit a trend of primary school-oriented practices, focusing excessively on knowledge transmission while neglecting the cultivation of comprehensive qualities, particularly creativity. Moreover, the unidirectional approach to the kindergarten-primary school transition results in weak connections between kindergarten and primary school, making it difficult to form an effective synergy. Therefore, this study, based on the context of curriculum gamification, explores effective strategies for cultivating creativity during the kindergarten-primary school transition. The goal is to understand the intrinsic logic between curriculum gamification and the development of creativity, enabling children to continuously enhance their creativity and stimulate innovative thinking through play.

Keywords: Curriculum Gamification; Kindergarten-primary School Transition; Creativity.

1. Introduction

Professor Yu Yongping emphasizes that "curriculum gamification" does not mean transforming all kindergarten activities into games but rather embedding the spirit of play into every aspect of daily life in kindergartens. [1] The goal is to enable children to acquire knowledge, develop skills, and promote their holistic physical and mental development in a relaxed and enjoyable atmosphere through play-based methods. Curriculum gamification is characterized by the integration of life into the curriculum, experiential learning, process-oriented teaching, and situational learning. With the ongoing advancement of the nation's development strategies, the strategic goal of talent cultivation in China is to "focus on nurturing top-tier innovative talents and comprehensively improve the quality of autonomous talent cultivation." Therefore, effectively integrating the concept of curriculum gamification into the kindergarten-primary school transition to inspire children's creativity has become a critical issue in the field of education. Based on the requirements outlined in the *Guidelines for Learning and Development of Children Aged 3-6* (hereinafter referred to as the "Guidelines") and the *Curriculum Standards for Chinese Language in Compulsory Education* for the first stage, this paper explores the connections between preschool science and primary school thinking skills, preschool language and primary school language use, as well as preschool arts and primary school aesthetic creation. The aim is to provide effective strategies for cultivating creativity to teachers and parents, fostering collaboration to support the creative development of children.

2. Characteristics and Application Value of Curriculum Gamification

2.1 Characteristics of Curriculum Gamification

Curriculum gamification is characterized by its integration with everyday life, experiential learning, process-oriented approach, and situational learning. By designing curriculum content into games closely related to children's daily lives, curriculum gamification allows children to naturally acquire life skills during play, fully demonstrating the core value of game-based teaching. It emphasizes that children learn and understand knowledge through direct experiences. In gamified

curricula, children are active explorers and practitioners, gaining experiences through hands-on activities, observation, and perception. This focus on practical, hands-on teaching methods helps cultivate children's practical abilities and problem-solving skills.

Curriculum gamification highlights the dynamic and flexible nature of the teaching process. This dynamic adjustment not only helps maintain students' learning interest and motivation but also ensures that teaching activities align with their actual needs. Additionally, gamified curricula are inherently flexible, allowing for customization and adaptation based on different teaching objectives and subject characteristics. Typically, gamified curricula create specific game scenarios where children can learn and apply knowledge in context. This not only enhances the fun of learning but also helps children develop a deeper understanding and mastery of knowledge.

As an emerging teaching model, curriculum gamification holds broad application prospects in early childhood education. By integrating the concepts and spirit of play into various activities within curriculum implementation, it achieves a deep fusion of curriculum and play, enabling children to learn through play and grow happily. Curriculum gamification is characterized by its integration with everyday life, experiential learning, process-oriented approach, and situational learning. These features make it an innovative and practical teaching model, worthy of in-depth research and widespread application by educators.

2.2 Application Value of Curriculum Gamification

1. Enriching Children's Life Experiences

Gamified curricula simulate real-life scenarios, creating strong connections to everyday life. For instance, in playhouse and role-playing games, children can deepen their understanding of the real world. Such curricula not only familiarize children with basic processes and rules of daily life but also help them grasp the characteristics of various aspects of life, thereby enriching their life experiences and general knowledge. Additionally, some activities require children to possess certain life skills. By participating in games, children can practice these skills in a hands-on way. For example, activities like "shoe-tying competitions" enhance children's ability to face daily challenges effectively.

2. Enhancing Children's Hands-on Abilities

Gamified curricula use engaging and entertaining forms of play to capture children's attention, allowing them to experience the joy of hands-on activities. This sparks their interest in hands-on engagement, which serves as a crucial driver of active learning and development. Within gamified curricula, children are provided with ample opportunities for hands-on practice through various activities. At this stage, older preschoolers (ages 5-6) particularly enjoy using low-structured, highly combinable materials. Additionally, as their balance and coordination skills improve, they can handle simple tools and equipment. Activities such as "building blocks" and "pink tower" construction games not only strengthen their hand muscles and coordination skills but also teach them how to apply prior knowledge to solve related problems in practical situations.

3. Fostering Intellectual Development in Children

Gamified curricula require the integration of both hands and minds, promoting the coordinated development of motor and cognitive functions. This simultaneous engagement improves children's hands-on abilities while also stimulating intellectual growth. Games such as "sorting games" and "card-matching number games" encourage children to unleash their creativity and imagination to develop new game rules or designs. These creative activities not only refine their manual skills but also cultivate innovative thinking and problem-solving abilities. Furthermore, gamified curricula provide children with opportunities to experience the joy of success and a sense of achievement, which fosters positive emotions, self-confidence, and self-esteem. These feelings, in turn, motivate children to actively participate in gamified learning activities.

3. Analysis of the Current Situation in Cultivating Creativity during the Kindergarten-Primary School Transition

3.1 The Perspective of Children

1. Differences in Children's Creativity and Physiological Foundations

During the kindergarten-primary school transition, children exhibit varying levels of imagination development. Some children possess rich imaginations, enabling them to freely associate and create, while others may be more conservative and lack sufficient imagination. For instance, when reading picture books, children with strong imaginations tend to make novel associations based on the content, while those with weaker imaginative abilities struggle to engage in such connections. Additionally, differences in children's manual dexterity, verbal expression, and brain development during this stage significantly influence their levels of creativity.

2. Diverse Living Environments of Children

The learning environments of children during the kindergarten-primary school transition vary greatly. Some children experience relatively monotonous learning environments that lack the diverse materials and tools necessary to stimulate creativity. Factors such as family economic conditions or other limitations may prevent some children from accessing a variety of learning resources, reducing their opportunities to develop creativity through practice. For example, a positive, harmonious family environment that encourages autonomy and curiosity can inspire children's exploratory spirit and creativity. In contrast, a negative, indifferent environment with limited emotional interaction and support may hinder the development of children's creative potential.

3.2 The Perspective of Teachers

1. Inappropriate Design of Teaching Activities

In the kindergarten-primary school transition phase, the design of creative activities is critical for fostering children's creativity. However, some kindergartens remain influenced by traditional exam-oriented education, focusing primarily on knowledge and skill transmission while neglecting creativity cultivation. For example, some teachers mistakenly interpret child-centered curriculum gamification as simply allowing children to play freely throughout activities. This misinterpretation hinders teachers from internalizing the philosophy of gamified curricula into their educational beliefs, let alone applying this philosophy to guide their practices.

Furthermore, some veteran teachers cling to outdated educational methods, treating gamified curricula as merely playing games with children. This approach prevents them from keeping up with curriculum reform. While some primary schools attempt to stimulate students' innovative thinking and practical skills through interdisciplinary integration and project-based learning, such efforts are often constrained by limited teaching resources and staff, hindering their widespread implementation.

2. Deficiencies in Teachers' Educational Concepts and Competence

The latest version of the Guidelines for Kindergarten Education (Trial) explicitly emphasizes that all types of kindergartens should implement holistic education, fully respecting each child's personality and rights to foster individual development. However, in practice, many teachers struggle due to a lack of systematic training and guidance, particularly in designing teaching activities and evaluating children's creative development.

The transition from kindergarten to primary school involves more than just a shift in knowledge content; it also requires a shift in educational philosophy. In lower primary grades, exploratory and gamified learning methods should continue to be emphasized to sustain children's enthusiasm for learning and creativity. However, many primary school teachers remain deeply influenced by traditional exam-oriented education, placing excessive emphasis on academic knowledge transmission while neglecting the continuity of creativity development in young learners.

Additionally, some teachers fail to acknowledge individual differences among students and adopt a "one-size-fits-all" teaching approach. This often results in certain students not receiving adequate support and guidance for developing creativity. Moreover, some teachers lack the awareness and

skills necessary to evaluate students' creativity, making it challenging for them to accurately assess creativity levels or provide targeted guidance and suggestions for improvement.

3.3 Family and Societal Dimensions

1.Limited Parental Awareness

According to the Kindergarten to Primary School Transition Survey Feedback Analysis Report, over 80% of parents acknowledge that creativity is crucial for their child's future development. However, in practice, only about 30% of parents regularly provide opportunities for their children to engage in activities that encourage free expression and exploration. This reveals a significant gap between parental recognition and action. Parents' understanding and support for school educational philosophies vary, which affects the maximization of educational outcomes.

In China, a common parental phrase is, "Don't let your child lose at the starting line." This mindset contradicts the principles of children's physical and mental development. Encouraging competition in academics and achievements from an early age often becomes a source of unhappiness. This "achievement-oriented" perspective fosters a bias against play in early childhood education, leading to overly adult-centered approaches that overlook children's developmental needs for creativity. Such practices stifle children's natural growth and hinder the potential development of their creativity. [2]

2.Insufficient Societal Support

Although the government and various sectors of society are increasingly prioritizing the cultivation of creativity in early childhood, with numerous policies and projects being implemented, there remains a lack of targeted policies and support measures specifically aimed at fostering creativity during the kindergarten-primary school transition.

To maximize economic gains, some private educational institutions promote misleading educational philosophies. This commercialized perspective often reduces the concept of the kindergarten-primary school transition to a mere preparation for academic content, where children don backpacks and enter classrooms prematurely. Additionally, many parents select courses and extracurricular programs for their children based on the principle of "improving academic performance," often neglecting their child's genuine interests. This approach does not support the development of creativity.

Furthermore, some kindergartens, especially private ones, cater to parental demands by hiring retired primary school teachers and designing curricula based on primary school teaching requirements. These institutions frequently teach first-grade content, reinforcing the trend of primary school-oriented early education. This phenomenon ultimately restricts the cultivation of creativity in young children. [3]

4. The Intrinsic Logic of Curriculum Gamification and Creativity Cultivation in the Kindergarten-Primary School Transition

4.1 Scientific Games — Enriching Thinking and Imagination Abilities

The Guidelines from the Ministry of Education on Promoting the Transition between Kindergarten and Primary School clearly state that a two-way transition approach should be followed, with a strong focus on transition awareness. It calls for close cooperation between kindergartens and primary schools, utilizing scientific methods to ensure smooth preparation and adaptation for children entering school, thus achieving a seamless transition.

Additionally, the Guidelines emphasize that young children's scientific learning is a process of exploring and understanding the essence of things and their interrelationships while solving real-world problems. This process involves scientific inquiry and mathematical cognition. The essence of early childhood scientific learning lies in stimulating children's curiosity and fostering their ability to inquire. Piaget classified the stages of children's cognitive development into four stages, with children in the senior kindergarten stage (around 5-6 years old) at the pre-operational stage. At this stage,

children begin to develop logical thinking and generalization abilities, making it an ideal time for learning mathematical concepts.

Children aged 5-6 are deeply curious about questions that captivate them and tend to explore the root causes of these questions. [4] When they make discoveries during this exploration, they feel immense excitement and satisfaction. Preschool scientific games usually guide children to observe and think through concrete examples and inquiry-based activities, which help develop their investigative skills and innovative spirit. For example, science experiments and outdoor observations link scientific knowledge closely with children's daily lives, encouraging them to learn scientific concepts through hands-on activities and personal experiences. This method promotes creativity and problem-solving skills.

As children grow older, their abstract logical thinking abilities improve, allowing them to understand and apply more complex scientific concepts and principles. Scientific activities such as “puzzle games” or “scientific knowledge contests” encourage children to engage in hands-on activities and personal experiences to learn scientific knowledge, further cultivating their thinking abilities, problem-solving skills, and promoting creativity development.

4.2 Language Games — Enhancing Language Skills

Language is a crucial medium for communication and thought, and early childhood is a key period for the rapid development of language, especially oral skills. According to the Guidelines, children aged 5-6 can understand more complex sentences containing causal, hypothetical, and other relationships, and can narrate events coherently, clearly, and in a lively manner. At this stage, children also enjoy focused reading. The educational goals of language games are often clear, aiming to cultivate children's language expression, comprehension, and creativity, in alignment with the developmental requirements set out in the Guidelines.

Preschool language games come in a variety of forms, such as role-playing, storytelling, and reciting nursery rhymes, all of which enhance language expression and promote the development of creativity.

In primary school, students are expected to learn more formal language structures, focusing on the development of their logical thinking skills. They should be able to use language for reasoning, analysis, and synthesis. Preschool language games lay the groundwork for these skills by encouraging playful learning, which piques children's interest. At the same time, these games provide a rich array of language materials and modes of expression, helping prepare children for language development in primary school. Language games such as story-telling events and riddles nurture children's logical thinking, which forms a strong foundation for improved language skills in primary school, thus fostering creativity development.

4.3 Art Games — Cultivating Aesthetic and Creative Thinking

Art is the core means by which humans perceive, express, and create beauty. It is also a unique way for individuals to convey their understanding and emotional attitudes toward the surrounding world. The Guidelines emphasize that children aged 5-6 are keen to imitate distinctive sounds from nature and daily life, which sparks rich associations. Additionally, they are enthusiastic about participating in artistic activities and have preferred forms of engagement.

Artistic games in early childhood aim to provide abundant opportunities and conditions for children to gradually develop an appreciation for beauty and sensory experiences within the embrace of nature and social-cultural environments, further enriching their imagination and creativity. In this process, children are guided to feel, discover, and appreciate beauty with their hearts, encouraging them to express and create beauty in personalized ways.

In primary school, students are expected to further enhance their aesthetic abilities and accumulate a certain level of artistic literacy. Creativity is also one of the key abilities to cultivate at this stage. Through artistic creation activities, students can use their imagination and creativity to produce works that are unique and innovative.

Humanistic theory, particularly Carl Rogers' humanistic teaching perspective, emphasizes student-centered learning, respects students' individuality and autonomy, and asserts that self-concept development and self-actualization need to occur in a supportive and caring environment. [5] Early childhood art games allow children to accumulate basic artistic literacy, including knowledge, skills, and appreciation of art, in a relaxed and enjoyable atmosphere. These qualities are further consolidated and developed in primary school.

Art games provide children with rich artistic experiences, such as painting, handicrafts, and music. This hands-on practice helps cultivate their artistic expression and creativity. The initial cultivation of creativity during preschool supports children in better utilizing their imagination and creativity in primary school. Preschool art games focus on guiding children to appreciate and evaluate art, thus developing their aesthetic sensibility and taste. Through exposure to various artistic works, children learn to appreciate and assess them, enhancing their aesthetic abilities and laying a solid foundation for the cultivation of aesthetic creativity in primary school.

5. Effective Strategies for Cultivating Creativity in the Kindergarten-Primary School Transition under the Context of Curriculum Gamification

5.1 Integration of Curriculum Resources

The integration of gamified curriculum resources should adhere to the principles of comprehensiveness, relevance, practicality, innovation, and sharing. Internally, kindergartens can integrate educational resources such as teaching staff, facilities, and course content to create a complete gamified curriculum system. This can be achieved through teacher training and research activities to enhance teachers' understanding and implementation of the gamified curriculum. Establishing close collaborations with primary schools is also essential to understand their teaching content and requirements, ensuring smooth alignment of the gamified curriculum with primary education.

External resources, such as those from the community or businesses, can be utilized to enrich the content and forms of the gamified curriculum. Additionally, the internet and modern communication technologies can be leveraged for remote sharing and exchange of gamified curriculum resources. For example, introducing online education platforms and gamified learning tools can offer children more enriched learning experiences. Furthermore, integrating advanced international gamified curriculum resources can improve the quality of education in kindergartens. Collaborating with international educational institutions to conduct cross-cultural exchanges and learning activities can also broaden children's global perspectives.

5.2 Specific Measures for Curriculum Pathways

1. Pre-Class Preparations

Teachers can prepare brightly colored drawing tools such as markers, crayons, and watercolor paints, as well as materials like paper and canvases for painting. These tools can stimulate children's interest in drawing and creativity while helping to develop their motor skills and creative abilities. Teachers can also prepare images, videos, storybooks, and other resources related to creativity cultivation to inspire children's imagination and ideas.

2. Activity Content

To cultivate children's creativity, teachers need to optimize game content and strategically plan games related to creativity development. For example, a "Little Scientist" game can be organized, where children explore the wonders of nature through simple scientific experiments, or a "Creative Painting" activity, encouraging children to use brushes to express their imagination and creativity.

3. Activity Goals

In the context of gamified curriculum teaching, teachers should focus on two main goals: "kindergarten-primary school transition" and "creativity cultivation," considering them as the

foundation of education. Teachers should scientifically construct game-based courses around these goals, ensuring a comprehensive and holistic approach to education. For instance, setting up highly engaging construction games or role-playing activities can stimulate children's imagination and creativity while also improving their practical skills.

4. Activity Feedback

Teachers should continuously optimize the design of gamified curricula based on children's interests and needs, making the course more relevant to their lives and experiences. For example, introducing more diverse game elements and activity formats can further stimulate children's creativity and imagination. Teachers should also pay attention to individual differences, offering personalized instruction tailored to each child's characteristics and needs. For example, providing games and tasks of varying difficulty to meet the developmental needs of different children.

5. Activity Case Study

Table 1. Summary of Gamified Curriculum Segment Design

Activity Theme	Activity Content	Purpose of the Design
Kindergarten Science Field: "Card Builder"	Distribute materials: "Four cards," and show the image set "Card Building Challenge," encouraging children to explore methods of building with cards. They will begin to understand that increasing the surface area of the card supports balance, making the card house more stable. 1. Distribute four cards to each child, and allow them to continue exploring with teacher's guidance as they circulate around the room. Teacher: "Now, each of you has four cards. How can you use these cards to build a house? Please try it out." 2. Show the image set "Card Building Challenge—1," and allow children to present and discuss their methods with the teacher's help. Teacher: "Let's invite some children to show their houses. How did you build yours?"	Starting with showing the card images to spark children's interest, the teacher gradually guides the children to explore methods of building with cards. Through sharing and discussion, children's understanding is deepened. Finally, children are encouraged to build their own card towers independently and appreciate and evaluate each other's results. Through hands-on activities, this process develops children's practical skills, problem-solving abilities, and observational skills, while also promoting the development of their cooperation and creativity.
Big Class Language Area: "Monkey Imitates"	Watch the second part of the silent animation and guide the children to narrate the story in sections. 1. Children freely describe the events that happen in the animation. Teacher: After the old man is woken up and sees that his straw hat is missing, what does he do? (Looking here and there) When the old man finds out that the monkey took the straw hat, what might he say? But the monkey refuses to give it back. The old man becomes more anxious—what might he say or do? 2. Can the children help the old man come up with a plan to get his straw hat back? Encourage the children to use their imagination and tell the story freely.	Guide the children to narrate the story in sections, enhancing their memory and language expression abilities. At the same time, the teacher encourages the children to think about ways to help the old man retrieve his straw hat, fostering critical thinking. This approach allows the children to tell the story freely, further developing their language expression skills and promoting their creativity.
Pre-K Art Area: "Leaf Collage"	Creative Session: "My Leaf Collage" (Distribute materials and guide children to create freely) Teacher: "Children, now you can create your own leaf collage using the materials provided. Please focus on your work, and later I will invite some of you to come up and show your artwork." (Children create independently, with the teacher providing guidance and support for those who need help.)	The activity uses leaves from nature to guide children in using their imagination and creativity. By creating collages, children produce imaginative works, allowing them to experience the joy of creation. This process helps develop their hands-on skills and aesthetic abilities, further fostering the growth of their creativity.

5.3 Course Reflection and Evaluation

In today's era, characterized by the rapid development of artificial intelligence, traditional evaluation methods often focus on children's academic achievements and memorization of knowledge.

However, gamified curricula require more diverse evaluation methods. Teachers can assess children's creativity levels through methods such as observation records, project creation, and creative work displays, providing more targeted guidance and feedback. Additionally, teachers should actively align with the needs of the times by combining artificial intelligence, big data, and traditional educational models to introduce timely feedback and evaluation, thereby improving gamified courses and promoting the development of children's creativity.

6. Conclusion

This study suggests that gamification in education, as an effective teaching model, can stimulate children's interest in learning, improve their independent learning abilities, and foster creativity in a relaxed and enjoyable environment. In game design, it is crucial to integrate games with the curriculum, selecting game content that is appropriate for children's age and cognitive abilities. Various teaching methods, such as role-playing, scenario simulation, and group discussions, should be used to enrich children's learning experiences. At the same time, teachers should pay attention to children's individual differences, providing personalized guidance and support to help each child grow and develop through gamified learning.

The strategy for fostering creativity during the kindergarten-to-primary school transition under the gamified curriculum is a systematic project requiring the joint efforts of educators, parents, and society. By implementing effective gamified teaching strategies, we can create a more open, free, and creative learning environment for children. With the advancement of technology and the integration of education with big data, we can better promote the development of creativity during the transition phase, laying a solid foundation for their future learning and life.

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