

A Practical Exploration of Empowering Senior Preschool Children's Social Competence Through Nature-Based Play

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Abstract: Against the backdrop of rising academic attention to nature-based education within early childhood education circles, the localized indigenous curriculum *Germinating Four Seasons* developed by Huazhong Agricultural University Kindergarten incorporates nature-based play as its core teaching module, furnishing tangible practical carriers for fostering the comprehensive social competence of senior preschool children. Targeting senior preschool learners, this paper integrates Jean Piaget's Cognitive Development Theory, Lev Vygotsky's Sociocultural Theory and John Dewey's "Learning by Doing" Theory. Drawing on systematic literature collation and on-site practical exploration, the paper first delineates the definitive connotation of nature-based play, then conducts an in-depth dissection of the ideal developmental benchmarks, realistic predicaments and underlying root causes of senior preschool children's three-dimensional social competence encompassing interpersonal communication, awareness of rules and peer collaboration. Furthermore, this study puts forward targeted, operable practical strategies to cultivate children's social competence via nature-based play from three interrelated dimensions: seasonal-themed natural scene construction, child-centered rule formulation, and the design of collaborative challenging tasks. The research can deliver systematic theoretical references and frontline instructional guidance for the design and implementation of nature-based curricula as well as the targeted cultivation of preschool children's social competence.

Keywords: Nature-based play; Senior preschool children; Social competence; Practical implementation pathways

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1. Introduction

Supported by open-air outdoor venues and unprocessed original natural raw materials, nature-based play serves as an indispensable supplementary educational form that remedies the inherent limitations of conventional indoor preschool games^[1]. Breaking rigid spatial boundaries, it constructs open, interactive ecological environments tailored to cultivate young children's social interaction capacities. The senior preschool phase constitutes a pivotal transitional period prior to primary school enrollment. Children's proficiency in

interpersonal communication, internalized awareness of rules and peer collaborative capabilities exert direct, profound impacts on their group adaptability and long-term social-emotional development. Characterized by openness, frequent interactivity and experiential immersion, nature-based play aligns perfectly with the developmental law of senior preschool children, who acquire knowledge and grow socially through continuous exploration and mutual communication. As a distinctive educational medium for advancing young learners' social competence, nature-based play boasts irreplaceable educational value. Under such a contextual backdrop, sorting out systematic implementation approaches and refining optimized instructional tactics can furnish preschool educators with concrete, actionable operational guidance and offer replicable references for analogous nature-based education practices across kindergartens, thereby facilitating high-quality cultivation of social competence among senior preschool children^[2].

2. Definition of core concepts and theoretical foundations

2.1. Definitive connotation of nature-based play

In alignment with the curriculum positioning of our kindergarten's indigenous program *Germinating Four Seasons*, nature-based play is defined as unstructured or semi-structured recreational activities carried out in open-air natural settings such as kindergarten planting gardens, campus woodlands and peripheral urban park green belts. Taking unrefined natural raw materials including tree branches, fallen foliage, flower petals, cobblestones, clay and snow as primary play media, such activities are either autonomously initiated by children or launched under moderate teacher facilitation, with core objectives of gaining joyful experience, exploring natural ecological laws and engaging in interactive social communication^[3]. This category of play bears distinctive traits of open environmental space, unprocessed natural supplies, autonomous participatory processes and frequent peer interaction. It can fully activate children's multi-sensory perceptions covering vision, hearing, tactile sensation and olfactory sense, and create authentic natural scenarios to sustain spontaneous social exchanges among young learners.

2.2. Theoretical rationale and core dimensional manifestations of senior preschool children's social competence cultivated via nature-based play

From the perspective of developmental child psychology, Jean Piaget posits that senior preschool children who stand at the preliminary stage of the Concrete Operational Stage rely on tangible physical objects to complete cognitive construction. Nature-based play enables children to transform abstract social norms into concrete experiential perceptions through natural material operation and peer mutual communication, laying a solid cognitive foundation for the formation of social competence. Lev Vygotsky highlights that interpersonal social interaction constitutes the core driver of young children's psychological growth. Nature-based play creates immersive peer interaction scenarios such as collaboratively building branch cabins. Coupled with teachers' scaffolding instructional support, these scenarios assist children in surmounting their zone of proximal development in social communication. Guided by John Dewey's "Learning by Doing" Theory, nature-based activities such as handcrafting tableware from clay allow children to accumulate practical experience while coping with interpersonal conflicts. The educational model of "learning social skills in the course of play" conforms to the practical attributes of cultivating preschool children's social competence and satisfies the localized operational demands of kindergarten-based curricula^[4].

Integrating developmental child psychology theories and the on-site practical features of nature-based

play under the *Germinating Four Seasons* curriculum, the social competence of senior preschool children falls into three core developmental dimensions: Interpersonal communication competence: Children's comprehensive capacity to express personal demands proactively, patiently absorb peers' viewpoints and mediate minor interpersonal conflicts in interactive exchanges with classmates and instructors. Awareness of collective rules: First, interpersonal skills, which refer to young children's ability to take the initiative to express their needs, listen to others' ideas and resolve simple conflicts when interacting with peers and teachers. Second, awareness of rules, meaning children's ability to recognize, understand and consciously abide by the rules in group activities, including recognizing and carrying out "mutual agreements". Third, peer collaboration capability, namely children's ability to divide work, cooperate and help each other to achieve shared goals during group activities, which is embodied in caring about collective interests and taking corresponding responsibilities.

3. Current developmental status and predicaments of senior preschool children's social competence

3.1. Ideal developmental benchmarks for senior preschool children's social competence

In accordance with the developmental requirements for children aged 5 to 6 stipulated in the *Guidelines for the Learning and Development of Children Aged 3 to 6*, the ideal developmental status of senior preschool children's social competence is delineated as follows:

In terms of interpersonal communication, children can take the initiative to initiate peer interactions, articulate personal thoughts coherently, listen respectfully to others' opinions, and resolve minor interpersonal frictions via peaceful negotiation.

In terms of rule awareness, children can fully grasp the practical significance of collective regulations, voluntarily abide by game and activity conventions, and take the initiative to acknowledge and correct their misbehaviors once they violate established rules.

In terms of peer collaboration, children can participate in group activities with positive enthusiasm, divide work and cooperate with peers willingly, contribute to collective goals and actively care for partners by offering timely assistance.

3.2. Practical developmental deficiencies among senior preschool children

3.2.1. Deficient interpersonal communication competence

During nature-based play sessions, a portion of senior preschool children exhibit passive social tendencies: some remain too timid to invite peers to engage in joint activities, lingering alone while fiddling with natural materials; others display egocentric communication patterns during interaction, uttering remarks such as "This branch belongs to me and you cannot use it" while disregarding their partners' emotional feelings; when conflicts arise over raw material possession, they lack effective conflict resolution strategies, either bursting into tears and withdrawing from activities or engaging in direct quarrels and confrontations with peers.

3.2.2. Weak internalized awareness of collective rules

In nature-based play activities, certain children fail to recognize or voluntarily implement mutually agreed collective regulations fully. For instance, during the fallen leaf collage competition, they disregard the pact of not trampling on other children's artworks and damage peers' finished collages; in stream water interactive

games, they violate the rule of not splashing water onto classmates, triggering dissatisfaction among peers. Furthermore, many children merely perceive activity rules as mandatory demands imposed by teachers, lacking internal motivation to abide by such conventions voluntarily.

3.2.3. Insufficient peer collaborative consciousness

In team-based nature activities including collaborative branch cabin construction and collective vegetable cultivation, some children demonstrate a scarcity of collaborative awareness: they tend to complete tasks independently and reject assistance from peers; during labor division, they deliberately select simple, effortless assignments while shirking complicated, high-difficulty work; when encountering setbacks such as unstable cabin frameworks during collaborative projects, they directly abandon the task without maintaining patience to tackle difficulties alongside partners jointly.

3.3. Root cause analysis of existing predicaments

3.3.1. Impacts of family rearing patterns

Two problematic parenting modes prevail among a number of households: overprotective upbringing and excessive laissez-faire education. In overprotective families, parents resolve all interpersonal disputes for their children (for example, directly retrieving toys seized by other kids), depriving young learners of independent social practice opportunities. In excessively permissive households, caregivers fail to deliver targeted guidance on children's interpersonal behaviors, rendering children incapable of forming standardized social cognition and normative communication habits.

3.3.2. Limitations of in-kindergarten educational practices

Within conventional preschool activity arrangements, numerous instructors prioritize knowledge indoctrination and on-site order maintenance while attaching insufficient importance to nature-based play. On the one hand, nature-based activities are held infrequently, depriving children of sustained, consistent social practice scenarios. On the other hand, even in limited nature play sessions, teachers mostly intervene in activities as administrative supervisors rather than facilitators offering supportive guidance, preventing children from independently exploring diversified interpersonal communication strategies amid play.

3.3.3. Scarcity of opportunities to interact with natural environments

Accelerated urbanization reduces young children's exposure to natural surroundings. Most of their daily time is spent indoors or facing electronic devices, resulting in a lack of hands-on experience with natural raw materials and outdoor group interaction scenarios. Unfamiliarity with natural supplies and outdoor social settings leads to subpar social performance during nature-based play activities.

4. Practical strategies for cultivating senior preschool children's social competence through nature-based play

4.1. Construct seasonal-themed natural play scenarios to improve interpersonal communication competence gradually

Natural outdoor spaces function as innate interactive stages for children's social exchanges. Aligning with the distinctive ecological characteristics of spring, summer, autumn and winter, educators can build immersive,

interactive play venues to help children overcome social passivity and systematically master interpersonal communication techniques.

4.1.1. Develop season-matched open interactive venues to establish basic social platforms

Design differentiated nature-based activity zones corresponding to seasonal variations for senior preschool learners: a collaborative sowing zone in the campus planting garden for spring, a stream interactive area alongside rivulets for summer, a fallen leaf creation woodland for autumn, and a snow play ground on the campus sports field for winter. These venues feature unfixed seating arrangements and flexible boundaries, allowing children to move freely and autonomously select playmates, furnishing spatial prerequisites for active socialization. Taking the fallen leaf creation zone as an example, children must voluntarily seek partners to form teams, collectively gather foliage materials and negotiate creative themes, spontaneously generating social behaviors including invitations, responses and mutual consultation and laying groundwork for subsequent in-depth interaction.

4.1.2. Design social trigger points supported by complementary natural materials to stimulate proactive communication demands

Natural raw materials that cannot be used independently serve as core media to drive children's spontaneous socialization. Teachers select season-specific complementary and shareable supplies: long and short branches, assorted flower seeds for spring; multi-hued petals and cobblestones of varying smoothness for summer; diverse fruits, thick and thin vines for autumn; snow masses and ice strips of different hardness for winter. A single child cannot conduct abundant creative play with these materials alone, necessitating social exchanges centered on sharing and exchange. During spring branch cabin construction, for example, a child lacking long branches will take initiative to negotiate with partners: "I have short twigs and can help you build door frames if you lend me two long branches", or propose material exchanges such as "I will trade three sunflower seeds for your long branch". Through material-based interaction, children hone their capacity to express personal demands and listen to others' feedback, while mastering social maintenance tactics including mutual assistance and equivalent resource exchange^[5].

4.1.3. Adopt problem-oriented guidance to resolve interpersonal conflicts and accumulate in-depth social experience

Nature-based play frequently generates disputes over material possession and divergent creative opinions. Teachers shall position themselves as objective observers and supportive facilitators, guiding children to shift from passive conflict response to active problem-solving. During post-activity breaks, instructors first record conflict scenarios such as two children competing for purple morning glory blossoms, then organize group discussions: invite conflicting parties to articulate their respective feelings, encourage other children to propose feasible solutions, and collaboratively formulate settlement plans. Under such facilitation, children can devise resolution approaches including turn-taking and joint creation (for instance, one child utilizes flower petals to make bookmarks while the other fashions horns from flower stalks). Through repeated iterative practice, children gradually grasp empathy and win-win negotiation logic, with their capacity to mediate interpersonal conflicts markedly enhanced.

4.2. Take child-led game rule formulation as a bond to consolidate children's awareness of collective rules gradually

4.2.1. Guide children to draft game rules centered on safety and order independently

Prior to launching nature-based play, teachers organize discussion sessions via targeted question lists, inviting senior preschool children to deliberate on activity safety and material utilization norms. For summer stream play, illustrative guiding questions include “How can we avoid slipping injuries by the brook?”, “Where shall we store water ladles after use?” and “How to organize leaf drifting activities without chaos”. Children are encouraged to submit suggestions based on personal experience. Teachers collate these viewpoints into illustrated rule posters posted in prominent activity areas, enabling children to recognize that such conventions are self-formulated rather than externally imposed. During this process, children fully comprehend the practical necessity of rules (such as refraining from running to prevent falls) and develop a sense of responsibility to supervise peers and uphold established norms, voluntarily reminding classmates to return water ladles to designated blue storage barrels in compliance with mutually agreed regulations.

4.2.2. Reinforce rule cognition through experiencing natural consequences of violations

Compared with indoctrinating verbal criticism, allowing children to experience the natural outcomes of rule-breaking personally can deepen their internalized recognition of collective norms. In curriculum practice, teachers refrain from immediately intervening and penalizing misbehaviors; instead, they guide children to observe the impacts of their actions and engage in reflective self-evaluation. During autumn fallen leaf collage contests, if a child tramples on a squirrel-shaped leaf artwork crafted by a peer, the teacher first directs the child to perceive the classmate's sad facial expression, then invites the rule-breaker to assist in repairing the damaged collage. During winter snow play, children who hurl snowballs at others are guided to check their peers' bruised shoulders and offer comfort by brushing snow off their clothes or sharing snow-making molds. Through immersive experiential learning, children gradually realize that rules are not restrictive shackles, but safeguards to protect every participant and ensure joyful, orderly play.

4.2.3. Consolidate voluntary rule compliance via teacher demonstration and peer role models

The maintenance of collective rules relies on exemplary behavioral guidance. On the one hand, teachers strictly abide by the rules jointly formulated by children during nature-based play, serving as benchmark role models: for instance, voluntarily returning snow shovels after winter activities and gathering promptly upon hearing whistles, supplemented by verbal reminders such as “Place snow shovels in designated storage areas for next-time use”. On the other hand, teachers promptly praise children who adhere to norms in public sessions and invite them to share their understanding of rules, setting positive peer examples. Over time, children voluntarily imitate compliant behaviors such as queuing for sowing activities and tidying up materials post-play, transforming externally mandated regulations into internalized behavioral habits.

4.3. Drive peer collaborative competence development through challenging nature-based tasks

The cultivation of peer collaboration hinges on group assignments that cannot be accomplished individually. Aligned with senior preschool children's developmental capacities, educators design challenging natural play tasks with unified collective objectives, adopting a closed-loop operational framework of task initiation → autonomous labor division → post-activity reflection to help children master collaborative tactics and cultivate

a strong sense of collective responsibility ^[6].

4.3.1. Design seasonal collaborative tasks to stimulate intrinsic willingness to cooperate

Develop group assignments requiring two to four participants corresponding to seasonal natural resources, ensuring individual children lack the capacity to complete the entire project independently, thereby fundamentally motivating collaborative intent.

Take winter snow castle construction as an example: the unified collective objective is to build a snow castle capable of accommodating three children with gate and window structures. The task is divided into three core links: snow collection requiring physically strong children, wall construction demanding balanced control capabilities, and decorative detailing suitable for meticulous learners. A single child cannot finish the complete project within the designated time frame.

The autumn fruit sorting and transportation task sets the target of classifying oranges, pomelos and hawthorns into separate boxes and transporting them back to the classroom, split into picking (utilizing small scissors safely), classification (requiring careful observation) and transportation (needing physical strength). Each segment necessitates peer coordination to boost operational efficiency.

Upon task initiation, children take initiative to seek teammates, uttering remarks such as “I am physically strong and can shovel snow — who will join me to build walls?” and “I excel at classification, let’s collaborate to collect fruits”, naturally generating collaborative demand ^[7].

4.3.2. Guide children to divide labor autonomously based on personal interests and capabilities

Prior to launching collaborative tasks, teachers host role discussion seminars to facilitate children’s negotiation over labor allocation, encouraging them to select assignments matching their hobbies and strengths. During snow castle construction, instructors first ask “What tasks do you enjoy and what are you good at?” Children volunteer responses including “I like stacking snow and want to build walls” and “I can arrange cobblestone decorations and will design gate patterns”. If multiple children compete for decorative assignments, teachers guide negotiation strategies such as dividing gate and window design work or taking turns to complete detailing. After labor allocation, teachers distribute role badges labeled “Snow Shoveling Specialist” and “Decoration Designer” to reinforce role awareness, reminding children to check their partners’ progress once their own assignments are finished. In practical activities, children proactively offer assistance: snow shovelers help wall builders when their progress lags, while decorators ask transportation partners to collect round cobblestones. Through autonomous division and mutual aid, children gradually recognize the equal importance of every role and develop a robust sense of collective accountability ^[8].

4.3.3. Summarize collaborative experience through post-play reflection seminars to optimize teamwork tactics

After every collaborative task, teachers organize play sharing sessions consisting of three segments: photo review, child narration and collective summary. Taking the autumn fruit sorting task as an illustration, teachers first display on-site photographs capturing picking and group transportation scenes, then invite children to share personal experiences: “How did we collaborate to collect fruits just now? What did we do well?” and “What difficulties arose, and how did we resolve them?”. Children actively recount smooth labor division processes and instances of mutual support, while also pointing out practical obstacles such as crowd congestion at classroom doorways during transportation. Teachers then guide group brainstorming to formulate

optimized solutions, including transporting in batches of two children and adopting separate access routes. Through continuous reflection and iterative optimization, children gradually summarize effective collaborative strategies including clear labor division, timely communication and flexible adjustment, substantially elevating teamwork efficiency in subsequent spring sowing and summer watering activities ^[9].

5. Practical outcomes and reflections

5.1. Practical educational outcomes

5.1.1. Positive transformations in children's social competence

After one full academic year of systematic nature-based play practice, senior preschool children's social competence achieves remarkable overall advancement. In interpersonal communication, the proportion of socially passive children declines significantly; most learners take initiative to invite peers to joint activities such as fallen leaf collage, and propose negotiation strategies including turn-taking and material sharing when resource conflicts emerge. In terms of rule awareness, children's recognition of collective conventions is strengthened: they voluntarily comply with norms such as returning water ladles post-stream play and remind peers of violations, while taking initiative to apologize and correct their own misbehaviors once breaking rules. In peer collaboration, children proactively divide labor and provide mutual support, adjusting personal behaviors to align with collective project goals ^[10].

5.1.2. Transformations in teachers' educational concepts and instructional practices

Teachers shift their positioning from play supervisors to supportive facilitators of children's developmental growth. Ideologically, they cease rigidly requiring activities to follow pre-set frameworks, instead prioritizing children's autonomous exploratory behaviors (for example, refraining from correcting irregular branch cabins and instead inquiring about children's design concepts). In practical instruction, they adopt an observation-guidance-reflection operational mode to mediate interpersonal conflicts indirectly rather than intervening directly, aligning educational tactics more closely with children's developmental demands.

5.1.3. Optimized home-kindergarten collaborative education atmosphere

Through parent-child nature activities including joint fallen leaf creation and collaborative snowman building, parents can intuitively witness their children's progress in social interaction, enhancing their recognition of nature-based education. Caregivers voluntarily increase children's outdoor natural exposure, forming a synergistic education ecosystem led by kindergartens and supplemented by family participation.

5.2. Practical reflections and optimized suggestions

5.2.1. Existing deficiencies in practical implementation

First, uneven distribution of natural activity resources: certain kindergartens suffer from site constraints, leading to monotonous single-type social interaction scenarios in nature play. Second, inadequate teacher facilitation capabilities: instructors tend to either over-intervene or offer insufficient guidance during activities, failing to grasp children's zone of proximal development accurately. Third, insufficient targeted support for special children: extremely introverted children merely receive superficial encouragement to participate, lacking tiered progressive guidance, resulting in low social engagement levels.

5.2.2. Corresponding optimization proposals

First, expand available natural resources: establish miniature natural activity zones via linkage with community green spaces to compensate for campus site shortages. Second, strengthen systematic teacher training through thematic teaching research, case observation and expert instructional coaching to elevate instructors' targeted facilitation capacities during nature-based play.

Disclosure statement

The author declares no conflict of interest.

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