The Effect of Mixed-age Game Activities on Preschool Children's Prosocial Behavior

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Abstract. This study focuses on the impact of mixed-age play activities on preschool children's prosocial behaviors. In response to the limitations of same-age grouping and the challenges in children's social development, it is supported by Vygotsky's "Zone of Proximal Development" and Bandura's social learning theory. Through literature review and case analysis, it compares the differences between same-age and mixed-age play. The research finds that mixed-age play enhances children's self-efficacy in prosocial behaviors through mixed-age feedback, promotes the acquisition of prosocial cultural tools, and facilitates self-monitoring and adjustment of prosocial behaviors, thus having unique value in fostering prosocial behaviors. Four implementation strategies are proposed: designing activities based on stratified goals and cooperative tasks, establishing a role guidance mechanism that leverages the leadership of older children and the empowerment of younger ones, creating a safe and inclusive interactive environment, and adopting a process-oriented growth evaluation. The study has limitations, such as a single sample and not considering external interference factors. Future research should be optimized by expanding the sample and combining mixed research methods to provide references for mixed-age play practices in kindergartens and the cultivation of prosocial behaviors.

Keywords: Preschool children; Mixed-age game activities; prosocial behaviour.

1. Introduction

At present, kindergartens in China generally adopt the same-age grouping model. Although this model can reduce the difficulty of class management and facilitate teachers' centralized observation and grasping of the common development characteristics of children in terms of cognition and actions, it also limits the interaction circles of children and makes it difficult to provide diversified social situations. Games are the core carrier for cultivating children's prosocial behaviors such as cooperation, sharing, and mutual assistance. However, due to factors such as the miniaturization of modern families, the reliance on electronic products, and the reduction in neighborhood interactions, children's natural play opportunities have significantly decreased, resulting in restricted interaction, initiative, and collaborative ability development. Based on this, many kindergartens in China have begun to explore mixed-age game activities, breaking the barrier of the same-age grouping model, and placing children of different age groups in the same activity space, aiming to make up for the deficiencies of the current educational model and living environment through cross-age interaction, and deeply explore its promoting effect on the prosocial behaviors of preschool children. Many studies have confirmed that games can promote prosocial behaviors in preschool children. It is generally believed that games can enhance academic skills and improve emotional intelligence, creativity, and social skills. In Vygotsky's concept of the Zone of Proximal Development, it is pointed out that the best learning outcome is achieved when people learn collaboratively. Learners can acquire and internalize new concepts precisely through cooperation with more skilled individuals [1]. In mixed-age games, older children can provide "supports" for younger children, helping them complete slightly challenging tasks. This kind of assistance is itself a form of prosocial behavior. Younger children, on the other hand, are in the "zone of proximal development", where they learn more complex social rules and cooperation skills by observing and imitating older children. Meanwhile, Bandura's social learning theory also emphasizes the significance of observing, imitating, and replicating the behaviors, attitudes, and emotional responses of others [2]. In a mixed-age environment, older children become natural "role models" for the prosocial behaviors of younger

children. Younger children learn to share, cooperate, and help others by observing and imitating. The preschool stage is an important period for the formation of prosocial behaviors. However, research on how mixed-age game activities promote prosocial behaviors in preschool children has not yet been discussed. Therefore, it is necessary to analyze how mixed-age game activities affect children's prosocial behaviors and propose specific strategies. This study employs multiple methods, such as literature review and case analysis, to compare same-age play activities with mixed-age play activities in a kindergarten [3], aiming to explore the significance of mixed-age play activities for children's prosocial behaviors in kindergartens and how to carry out appropriate mixed-age play activities. This study aims to deeply explore the intrinsic connections among the organizational models of mixed-age games, teachers' guidance strategies, and the cultivation of prosocial behaviors in individual cases, distill universal practical principles and operational paths, provide direct case references for kindergartens to carry out mixed-age games and optimize the strategies for cultivating prosocial behaviors, offer empirical evidence for preschool educators to understand the practical value of mixed-age education, and provide specific references for kindergartens to design mixed-age game activities and optimize the practical strategies of mixed-age education, thereby facilitating the enhancement of children's prosocial abilities through game intervention.

2. Literature Review

2.1. Mixed-age Game Activities

Mixed-age play in kindergartens is a type of game organization that breaks the age and spatial interaction restrictions of young children. It allows children from different classes and age groups to gather together and independently choose game themes, roles, companions, and materials [4]. Mixed-age games for young children can be classified into different types based on the content of the activities and educational goals, such as sports games, role-playing games, and construction and intelligence games [5]. Research has found that different types of mixed-age games can intersect and influence each other, thereby promoting prosocial behaviors in different ways. For example, mixed-age sports games promote cooperation and mutual assistance, with older children taking the lead in organizing and protecting, and younger children learning to ask for help; they also strengthen the sense of rules, with older children reminding and younger children adapting, reducing conflicts. Mixed-age role-playing games enhance empathy and sharing, with older children imitating care and younger children experiencing and imitating kindness; they also improve communication and collaboration, negotiating roles and plots, and promoting understanding of others' needs. Mixed-age construction and intelligence games promote division of labor and support, with older children assigning tasks and guiding, and younger children learning gratitude; they also cultivate problem-solving and tolerance, jointly dealing with difficulties and accepting differences.

2.2. Prosocial Behaviour

Prosocial behavior is a unique and important human trait, referring to voluntary help to others without expecting rewards [6]. Current research shows that during the preschool period, children become increasingly strict in helping others and exhibit more prosocial behaviors compared to other age groups [7]. In kindergartens, peer interaction is one of the conditions for the emergence of prosocial behavior, and games provide a favorable environment for peer interaction. Mixed-age game activities, as an important part of games, play a significant role in promoting prosocial behavior.

2.3. Study on the Relationship Between the Two

Many studies have confirmed the promotion of prosocial behavior in preschool children through games. However, research on how mixed-age game activities promote prosocial behavior in preschool children has not yet been discussed. However, a large number of studies on the promotion of prosocial behavior in preschool children through games provide important references and theoretical foundations for exploring the influence of mixed-age games in this regard. Modern

scholars, based on Piaget's and Vygotsky's game theories, have further confirmed that games can enhance academic skills and improve their emotional intelligence, creativity, and social skills. In mixed-age games, children interact with peers of the same age, which is conducive to obtaining common experiences and the possibility of negotiating and cooperating; interacting with younger peers promotes the cultivation of their sense of social responsibility, autonomy, and organizational activity skills; interacting with older peers increases opportunities to learn experience, knowledge, and skills.

2.4. Summarize the Research Blank and Put Forward the Research Topic

Previous studies have explored the relationship between games and prosocial behaviors in preschool children from various perspectives, such as game types (e.g., cooperative games, parallel games), game materials, and teacher guidance methods, accumulating rich data in this field. However, there are still significant deficiencies in the existing research. Firstly, most studies focus on the impact and effects of different game types on prosocial behaviors but fail to fully consider whether mixed-age games, as a special organizational form, have unique influences on prosocial behaviors and to what extent. Secondly, the research scenarios in existing studies are mostly limited to same-age games, lacking comparative analyses of the effects and mechanisms of mixed-age games and same-age games in promoting prosocial behaviors, making it difficult to clarify their unique value them. To address these research gaps, this study takes 3-6-year-old preschool children as the research subjects and uses multiple methods, such as literature review and case analysis, to compare and analyze the impact of same-age games and mixed-age games on the prosocial behaviors of preschool children.

3. The Importance of Mixed-Age Game Activities on Children's Prosocial Behavior

3.1. Mixed-Age Feedback Strengthens the Continuous Practice of Prosocial Behavior

Bandura proposed that self-efficacy is a key factor influencing the persistence of behavior, and feedback from others is an important way to shape self-efficacy [8]. In mixed-age games, the interaction and feedback between children of different ages can effectively enhance the self-efficacy of both parties in prosocial behavior, promoting the continuous development of the behavior.

For younger children, when they attempt prosocial behavior, the approval of older children becomes positive feedback, helping them perceive that "they have the ability to help others and participate in cooperation", gradually building self-efficacy and stimulating the willingness to try again. At the same time, older children are more tolerant of younger children's mistakes than adults or stronger peers of the same age. Even if the prosocial behavior of younger children is not mature, they are less likely to receive negative evaluations, which can reduce frustration and maintain a positive attitude.

Older children's prosocial behavior will be relied upon by younger children and affirmed by teachers. This feedback makes them clearly perceive the effectiveness and value of their behavior, strengthening self-efficacy and forming their determination to practice. Moreover, older children must flexibly adjust their prosocial strategies when interacting with younger children of different personalities and abilities. The successful application of these strategies will enhance their confidence that "they can adapt their abilities to different situations", promoting the extension of behavior to more contexts.

3.2. Mixed-age Interaction Promotes the Acquisition of Prosocial-Related Cultural Tools

Vygotsky believed that "cultural tools" such as language and rules are important media for children's development, and children achieve ability improvement by mastering cultural tools [9]. Mixed-age games provide a natural scene for the transmission and acquisition of prosocial-related cultural tools (such as polite language and interaction rules).

Younger children can naturally acquire prosocial language tools. Older children will use relevant language during interaction, and younger children can quickly master it through imitation and application, learning to express their needs and respond to peers with appropriate language, providing communication support for prosocial behavior. At the same time, they can better understand basic interaction rules. Older children will convey simple rules and implement them through interaction, and younger children can intuitively understand the connotation and function of the rules during participation, gradually internalizing them as behavioral constraints.

For older children, they can skillfully use and optimize cultural tools. When guiding younger children, they need to transform complex rules into simple language and abstract concepts into specific guidance. This process can enhance proficiency in using cultural tools and optimize transmission methods based on feedback. More importantly, older children can take on the role of cultural tool transmitters. As transmitters, they will deeply understand the importance of cultural tools for interaction, enhance the sense of responsibility for "maintaining interaction order", and more consciously regulate their own behavior, becoming active practitioners and transmitters.

3.3. Mixed-age Situations Promote Self-Monitoring and Adjustment of Prosocial Behavior

Bandura pointed out that mature behavioral development requires self-regulation ability (monitoring and adjusting one's own behavior) [10]. The complex interactive situations in mixed-age games can promote the development of children's self-regulation ability in prosocial behavior.

For younger children, they can initially establish behavioral monitoring awareness. When interacting with older children, they can perceive the impact of their behavior through the reactions of the other party, gradually paying attention to the connection between behavior and the emotions of peers, establishing the awareness that "behavior may affect others", and attempting to adjust inappropriate behavior. At the same time, they can learn simple behavioral adjustment strategies. When their behavior does not conform to norms, older children will point out or demonstrate the correct approach, and younger children can learn strategies from this, gradually correcting their behavior based on feedback, and developing in a prosocial direction.

For older children, they can enhance the initiative of self-monitoring of behavior. As "role models", they will actively pay attention to whether their behavior conforms to prosocial standards, avoid affecting younger peers, promptly discover shortcomings and make adjustments, and strengthen their self-restraint ability. In addition, they can develop complex behavioral regulation abilities. In mixed-age games, it is necessary to balance one's own needs, the needs of peers, and the rules. For instance, when distributing toys, one should take into account both personal preferences and the needs of peers. This process can exercise the ability to comprehensively analyze the situation and flexibly adjust one's behavior, enhancing the complexity and effectiveness of regulation.

4. Strategies and Methods of Implementing Mixed-Age Game Activities

4.1. Activity Design——Stratified Goals and Cooperative Tasks

Activity design should avoid a one-size-fits-all approach. It should break down differentiated goals around a unified theme, allowing children of all ages to find participation points that match their abilities. For younger children, the goals should focus on basic ability development, such as rule cognition and simple operational skills, helping them build basic confidence in participating in activities. For older children, the goals should emphasize the improvement of higher-order abilities, such as task planning, problem-solving, and collaborative organization, promoting their ability breakthroughs through challenges. At the same time, the task types should be centered on cooperation, discarding individual competitive tasks. Through clear and complementary divisions of labor, younger children can undertake basic execution tasks, while older children are responsible for coordination or guidance tasks, ensuring that every child can participate in the entire task process. This avoids younger children being passive observers and prevents older children from losing interest due to overly easy tasks.

4.2. Role Guidance——Establishing a Mechanism of Older Children Leading and Empowering Younger Ones

Role guidance is an important way to ensure the orderly development of mixed-age interactions. Before activities, brief guidance can be provided to assign older children roles such as "little assistants" or "guides", clarifying their core responsibilities - assisting younger children in understanding task requirements and reminding them of operational norms. At the same time, it is important to guide them to avoid excessive dominance and cultivate their empathy and respect. For younger children, appropriate support tools should be provided to lower the participation threshold. For example, pictures and simple props can be used to help them express their needs. When younger children communicate through body language or simple words, teachers should intervene promptly to demonstrate and guide older children to patiently interpret and respond, gradually helping younger children build confidence in expression and transform from "passively accepting help" to "actively participating in interaction".

4.3. Environment Construction——Creating a Safe and Inclusive Interaction Space

The environment is the "hidden support" for mixed-age activities and needs to be optimized in both physical and psychological aspects. In terms of physical environment, sufficient collaborative space should be reserved to avoid conflicts caused by overcrowding. At the same time, activity materials of different difficulty levels should be provided, such as puzzles in 4-piece, 12-piece, and 24-piece formats, and both pre-cut and complete materials for handicrafts, to meet the operational needs of children of different ages. In terms of psychological environment, an atmosphere of "allowing mistakes and encouraging exploration" should be created. When older children make guiding mistakes or younger children make operational errors, teachers should first affirm their positive behaviors and then guide improvements in a gentle way, such as "Let's try another method together", avoiding negative evaluations that dampen children's participation enthusiasm. This ensures that every child can interact boldly in a safe psychological atmosphere.

4.4. Evaluation Optimization——Adopting a Process-Oriented Growth Evaluation

The evaluation of mixed-age activities should abandon the "outcome-oriented" approach and shift to process-oriented evaluation, focusing on children's interactive behaviors and ability development. Evaluation content can focus on two aspects: the collaboration awareness and guiding ability of older children, and the participation willingness and imitative learning ability of younger children. Evaluation methods can include daily observation records and activity video records, continuously track children's growth changes, and dynamically adjust activity designs. This avoids harshly criticizing younger children based on a uniform "task completion rate" or overly demanding older children with "leadership" standards, truly viewing each child's progress from a developmental perspective.

5. Conclusion

Mixed-age game activities, as an educational practice form that breaks the barrier of homogeneous class divisions, have an irreplaceable value in cultivating prosocial behaviors of preschool children. From a theoretical perspective, based on Vygotsky's "Zone of Proximal Development" theory, the "scaffolding" assistance provided by older children in a mixed-age environment to younger children not only enables younger children to acquire social skills in appropriate challenges but also allows older children to deepen their prosocial cognition through helping others; based on Bandura's social learning theory, older children become natural "role models" for prosocial behaviors, and younger children internalize sharing, cooperation, and other behaviors through observation and imitation.

At the same time, mixed-age games promote the deep development of prosocial behaviors through unique interaction mechanisms. Mixed-age feedback provides diverse positive incentives for children, effectively strengthening their self-efficacy in prosocial behaviors and reducing frustration during the

process of behavior attempts; mixed-age interaction builds a bridge for the transmission of prosocial-related cultural tools, allowing younger children to naturally acquire polite language and communication rules, and enabling older children to deepen their understanding and application of rules during the transmission process; mixed-age situations force children to develop self-regulation abilities, younger children initially establish behavioral monitoring awareness, and older children improve self-discipline and flexible adjustment abilities, laying the foundation for the continuous practice of prosocial behaviors.

This study still has obvious deficiencies. Firstly, the research method has limitations, mainly relying on literature review and case analysis of a single kindergarten, lacking sample support from multiple regions and different levels of kindergarten management, and the generalizability of the conclusion needs to be verified; Secondly, it has not deeply explored the interference of external factors such as individual differences and family parenting styles on the promotion effect of mixed-age games, making it difficult to define the independent effect of mixed-age games precisely; Thirdly, it cannot clearly present the continuous impact of mixed-age games on prosocial behaviors and the subsequent development patterns.

In response to these deficiencies, future research and practice can be improved in four aspects. In research design, adopt a "quantitative + qualitative" mixed research method, expand the sample range, combine questionnaire surveys and long-term observations, and enhance the scientificity and representativeness of the conclusion; In research dimensions, include individual and environmental variables, analyze their interaction with mixed-age games, and clarify the optimization strategies under different conditions; In practice optimization, kindergartens need to further refine activity design, role guidance, environment setup, and evaluation mechanisms, adjust game plans dynamically according to the development differences of children, ensuring that each child can grow in mixed-age interactions; In evaluation system, construct multi-dimensional, operable process evaluation indicators, take into account the development characteristics of children of different age groups, use scientific evaluation to reverse promote the quality improvement of mixed-age games, and fully exert its core role in the cultivation of prosocial behaviors of preschool children.

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