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Global Journal of Research in Education & Literature
ISSN: 2583-2662 (Online)
Volume 04 | Issue 06 | Nov.-Dec. | 2024
Journal homepage: https://gjrpublication.com/gjrel/

Research Article

Research on Support Strategies for Children's Deep Learning in Independent Play in Senior Class

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DOI: 10.5281/zenodo.14502522 **Submission Date: 11 Nov. 2024 | Published Date: 16 Dec. 2024**

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Abstract

To improve children's independent play level, help teachers enhance their cognitive level of children's independent play, and enrich research on children's deep learning in independent play, this study conducted quantitative analysis and qualitative description of children's deep learning in senior class independent play. Through observing independent play of senior class children at X Kindergarten in Duanzhou District, Zhaoqing City, the researchers analyzed and evaluated children's deep learning. The results showed that the overall development level of deep learning in senior class independent play was relatively low, and there was an imbalance in teacher support strategies. Based on this, the researchers proposed two aspects to improve the support strategies for deep learning in children's independent play: improving the quality of deep learning support by transforming teachers' concepts and promoting balanced development of deep learning through flexible use of various support strategies.

Keywords: *Independent Play; Deep Learning; Senior Class Children.*

1. Problem Statement

Domestic research on deep learning in primary, secondary, and high schools has achieved certain results, but research on children's deep learning is just beginning (Wang & Liu, 2022). Since Professor Feng Xiaoxia mentioned the relationship between area play and deep learning at the 2016 Chinese Preschool Education Research Association Academic Conference, research on children's deep learning has gradually emerged. Deep learning emphasizes critical understanding of knowledge, focusing on whether children have active learning, reflection, and knowledge transfer in the learning process, aiming to cultivate children's problem-solving ability, innovation ability, metacognitive ability, and other learning literacy (Huang, Yang, & Yang, 2020). Independent play is a process where children actively engage in activities based on their interests and needs, with happiness and satisfaction as the purpose, freely choosing, independently conducting, and spontaneously communicating in a certain play environment (Zhou, 2021). This highly aligns with the metacognitive ability and problem-solving ability in deep learning.

Chinese scholars' practical research on children's deep learning mainly explores independent play, area play, and collective teaching (Ye & Li, 2023). Therefore, whether children can achieve deep learning in independent play and what strategies teachers should use are issues that early childhood educators are very concerned about. Through the framework obtained from existing research, this study observes and analyzes children's deep learning by dividing it into four parts: problem-solving, learning attitude, interpersonal interaction, and activity reflection, to provide strategies for supporting deep learning in children's independent play.

2. Research Methods and Design

2.1 Research Subjects

This study selected X Kindergarten in Zhaoqing City, Guangdong Province as the research subject. The kindergarten divides its space into sand and stone area, lock-block area, low-structure construction area, music performance area, courtyard area, front yard area, multi-function room, and graffiti area, offering various types of play including construction play, performance, building blocks, and sandbox play.

Based on the increased cognitive level of senior class children and their higher play level, which presents greater possibility for deep learning, the senior class was selected as the sample for this study, consisting of 30 children.

2.2 Research Methods

(1) Observation Method

Observation is a basic method for humans to obtain information about the external world and an important means of educational research. This study was divided into two stages:

The initial stage lasted one week, mainly to generally understand the overall implementation of independent play in the kindergarten, conduct preliminary observations and records of the target class, and determine whether the selected targets met observation conditions. The later stage adopted a one-month participatory observation, combining the "Children's Deep Learning Observation Scale" (see appendix) to score specific behavioral performances in children's independent play, with necessary recording of children's specific behaviors and teacher support strategies. This observation collected 60 samples through two observations of deep learning in independent play for 30 children.

(2) Interview Method

This study adopted informal interviews, judging children's connection and transfer ability, critical thinking ability, and activity reflection development level through conversations with children after each independent play session.

(3) Case Analysis Method

To analyze teacher support strategies for deep learning in senior class independent play, researchers collected cases through observation, and selected typical cases for organization and analysis to obtain the current status of support strategy application for deep learning in senior class independent play.

2.3 Research Tools

In this study, children's deep learning was divided into four dimensions: problem-solving, learning attitude, interpersonal interaction, and activity reflection. Researchers further refined these four dimensions into 12 indicators and made operational definitions for each dimension combined with children's deep learning behaviors in independent play (see Table 1).

Table 1: Operational Definitions of Children's Deep Learning Dimensions

Dimension	Operational Definition
Problem-solving	Able to discover and solve problems in play, have their own thoughts when looking at problems, and can combine existing experience with new experience during play.
Learning Attitude	During play activities, able to have clear goals, implement plans, fully engage in play, persist when encountering problems, attempt to solve problems through thinking, and autonomously choose and explore various materials.
Interpersonal Interaction	Able to initiate multiple interactions with peers or teachers during play activities, actively invite peers to join.
Activity Reflection	Actively share with peers and teachers during review and summary, able to explain their works in detail through the use of materials and methods, and express their gained experience.

3. Research Results and Analysis

3.1 Analysis of Development Level of Deep Learning in Senior Class Independent Play

In this study, researchers used a grade scoring method to observe and evaluate children's deep learning, with total scores for each dimension being 12, 20, 4, and 12 points respectively. Each indicator ranged from 0 to 4 points, with 12 indicators totaling 48 points. Researchers evaluated children's deep learning in independent play through the "Children's Deep Learning Observation Scale".

3.1.1 Overall Development Level of Deep Learning in Senior Class Independent Play

Based on data analysis, researchers obtained the overall development of deep learning in senior class independent play as shown in Table 2:

Table 2: Overall Level of Deep Learning in Senior Class Independent Play

Dimension	Sample Size	Mean	Standard Deviation	Median
Problem-solving	60	7.217	4.555	9.000
Learning Attitude	60	13.850	6.134	17.000

Dimension	Sample Size	Mean	Standard Deviation	Median
Interpersonal Interaction	60	2.467	0.747	2.000
Activity Reflection	60	6.100	3.727	7.000
Total Deep Learning Score	60	29.633	14.045	35.500

The results show that the mean total score for children's deep learning is lower than the theoretical median of 35.500 for this evaluation scale. The mean scores for problem-solving (7.217), learning attitude (13.850), and activity reflection (6.100) are all below their respective theoretical medians in the evaluation scale, while interpersonal interaction mean (2.467) is slightly higher than its theoretical median of 2. Furthermore, the standard deviations for problem-solving, learning attitude, and activity reflection are greater than 1, with learning attitude having the largest standard deviation of 6.134, while interpersonal interaction's standard deviation is less than 1.

3.1.2 Development Level of Various Indicators of Deep Learning in Senior Class Independent Play

To more deeply understand and analyze the development level of deep learning in senior class independent play, researchers conducted statistical analysis on the 12 secondary indicators under the four dimensions of problem awareness, learning attitude, interpersonal interaction, and activity reflection, obtaining the development levels of various indicators under the four dimensions of deep learning in senior class independent play as shown in the following tables:

Table 3: Development Level of Indicators Under "Problem-solving" Dimension

Secondary Indicator	Sample	Level	Frequency	Mean	Standard Deviation	Median
Problem Awareness	60	0 points	23	1.950	1.682	3.000
		1 point	2			
		2 points	4			
		3 points	17			
		4 points	14			
Association and Transfer	60	0 points	20	2.333	1.801	3.000
		1 point	3			
		2 points	0			
		3 points	11			
		4 points	26			
Critical Thinking	60	0 points	4	2.933	1.401	4.000
		1 point	9			
		2 points	9			
		3 points	3			
		4 points	35			

The results show that the mean scores for "Problem Awareness" (1.950), "Association and Transfer" (2.333), and "Critical Thinking" (2.933) are all below their theoretical median values. Scores for "Problem Awareness" and "Association and Transfer" are concentrated at 0, 3, and 4 points, while "Critical Thinking" scores are highest at 4 points. Additionally, the standard deviations for all three indicators are greater than 1, with "Association and Transfer" having the largest standard deviation.

Table 4: Development Level of Indicators Under "Learning Attitude" Dimension

Secondary Indicator	Sample	Level	Frequency	Mean	Standard Deviation	Median
Conducting Activities According to Goals and Plans	60	0 points	7	2.850	1.538	4.000
		1 point	10			
		2 points	3			

Secondary Indicator	Sample	Level	Frequency	Mean	Standard Deviation	Median
		3 points	5			
		4 points	35			
Independent Choice	60	0 points	2	3.133	1.384	4.000
		1 point	13			
		2 points	2			
		3 points	1			
		4 points	42			
Active Exploration	60	0 points	9	2.000	1.221	2.000
		1 point	9			
		2 points	20			
		3 points	20			
		4 points	2			
Overcoming Difficulties	60	0 points	5	2.817	1.334	3.000
		1 point	7			
		2 points	8			
		3 points	14			
		4 points	26			
Concentration	60	0 points	8	3.050	1.489	4.000
		1 point	3			
		2 points	7			
		3 points	2			
		4 points	40			

Table 5: Development Level of Indicators Under "Interpersonal Interaction" Dimension

Secondary Indicator	Sample	Level	Frequency	Mean	Standard Deviation	Median
Interaction with Others	60	0 points	0	2.467	0.747	2.000
		1 point	5			
		2 points	26			
		3 points	25			
		4 points	4			

The results show that the mean score for "Interaction with Others" is 2.467, higher than the theoretical median of 2 for this indicator. Scores are concentrated at 2 and 3 points. Additionally, this item's standard deviation is less than 1.

Table 6: Development Level of Indicators Under "Activity Reflection" Dimension

Secondary Indicator	Sample	Level	Frequency	Mean	Standard Deviation	Median
Reflection Ability	60	0 points	22	1.583	1.319	2.000
		1 point	1			
		2 points	19			
		3 points	16			
		4 points	2			
Explanation Ability	60	0 points	6	2.483	1.127	3.000
		1 point	2			
		2 points	19			
		3 points	23			
		4 points	10			
Sharing Works	60	0 points	18	2.033	1.562	2.000
		1 point	4			
		2 points	9			
		3 points	16			
		4 points	13			

The results show that the mean scores for "Reflection Ability" (1.583) and "Explanation Ability" (2.483) are both below their theoretical median values. "Sharing Works" has a mean score of 2.033, higher than its theoretical median. "Reflection Ability" scores are concentrated at 0, 2, and 3 points, "Explanation Ability" scores at 2 and 3 points, and "Sharing Works" scores at 0, 3, and 4 points. Furthermore, all three indicators have standard deviations greater than 1.

3.2 Analysis of Support Strategies for Deep Learning in Senior Class Independent Play

Researcher Jin Kenan, based on the CLASS system's classification and definition of teacher support, divided teacher support into emotional support, activity organization, educational support, and non-interference support (Jin, 2022); Researcher Chu Chunlei proposed in their research that effective support strategies for deep learning are: autonomous support, non-interference support, recognition support, and emotional support (Chu, 2023). Combining the support strategies of the research class teachers, researchers selected five aspects for coding and organization: cognitive support, experience support, emotional support, autonomous support, and productive support.

Table 7: Application of Support Strategies for Deep Learning in Senior Class Independent Play

	Sample	Cognitive Support		Experience Support		Emotional Support		Productive Support	
		Occurrences	Effective Times	Occurrences	Effective Times	Occurrences	Effective Times	Occurrences	Effective Times
Early Stage	30	7	7	0	0	1	1	1	0
Middle Stage	30	13	11	3	3	9	7	4	3
Late Stage	30	4	4	0	0	8	7	0	0

The results show that the number of occurrences for cognitive support, experience support, emotional support, and productive support are all below the sample average. In the early stage of activities, cognitive support and emotional support had 100% effectiveness rates; in the middle stage, cognitive support occurred most frequently with 13 times, and

among the four support strategies, only experience support achieved 100% effectiveness; in the late stage, emotional support occurred most frequently with 8 times.

4. Discussion

4.1 Characteristics of Development Level of Deep Learning in Senior Class Independent Play

Research results indicate that the overall development level of deep learning in senior class independent play is moderately low. Among these, the "Interpersonal Interaction" dimension shows a relatively high development level with small individual differences, while the other three dimensions show slightly lower development levels with larger individual differences. Under the "Problem-solving" dimension, all three indicators show low development levels and significant individual differences. Within the "Learning Attitude" dimension's five indicators, "Active Exploration" shows medium-level development, while the other four indicators show relatively low development levels. All five indicators show large individual differences, indicating that although active exploration is at a medium development level, there are still significant individual differences among children. In the "Interpersonal Interaction" and "Activity Reflection" dimensions, "Interaction with Others" and "Sharing Works" show relatively good development levels, with "Interaction with Others" showing small individual differences, while all three indicators in "Activity Reflection" show large individual differences. "Reflection Ability" and "Explanation Ability" show relatively low development levels with large individual differences.

From the frequency distribution of scores across the 12 indicators under four dimensions, it's evident that "Problem Awareness", "Association and Transfer", "Reflection Ability", and "Sharing Works" show polarization. "Active Exploration", "Interaction with Others", and "Explanation Ability" mainly remain at medium levels, while "Critical Thinking", "Conducting Activities According to Goals and Plans", "Independent Choice", "Overcoming Difficulties", and "Concentration" generally score at higher levels. This indicates that children can generally follow plans and goals to continue their play and maintain extended engagement in activities, with most able to solve problems independently when encountered. However, it's notable that while most children can independently choose materials, their exploration often remains limited to single materials, with only a few attempting to combine different materials.

Through interviews, it became clear that children all have independent views during play. Regarding problem awareness, some children are unable to recognize problems, while others can identify and attempt to solve them, with the former being more prominent. In terms of association and transfer, children either effectively combine new and existing experiences in their play or completely fail to integrate previous experiences. During the review and summary phase, some children either have no works to share or are unwilling to share and cannot independently describe their exploration process, while others actively share their works and autonomously describe their exploration process. Regarding explanation ability, children mostly concentrate on being able to simply or basically articulate the materials and methods used in their works.

4.2 Status of Support Strategies for Deep Learning in Senior Class Independent Play

In independent play, teacher support strategies include two aspects: first, the support teachers provide to ensure smooth implementation of independent play, such as providing various materials for independent play activities (Chu, 2023). Second, the scaffolding role teachers provide through interaction with children, including support, approval, and encouragement for their activities (Chu, 2023). This study examines support strategies for deep learning in senior class independent play from the second perspective.

Combined case analysis reveals that the effectiveness of teachers' cognitive support strategies and emotional support strategies can vary within the same play context, indicating that some children do not receive teachers' cognitive support, and emotional support is not effectively provided to every child. Meanwhile, experience support and productive support strategies provide good effects for the development of deep learning in children's independent play, with children not only receiving teachers' experience but also innovating based on it, and teachers being able to timely recognize children's emotions and provide verbal encouragement. Additionally, according to statistical data, teachers' application frequency of support strategies throughout the play process is low, showing an imbalance in support strategy occurrence. Cognitive support is less provided in both early and late activity stages, affecting children's planning in the early stage and activity reflection in the late stage. Experience support only appears in the middle stage, lacking support for children's experience accumulation in both early and late stages, affecting their ability development in experience transfer.

5. Recommendations

5.1 Transform Role and Play Perspectives to Enhance Support Quality for Deep Learning

Teachers' role perspective determines their roles in children's independent play, while their play perspective represents their views on children's play (Wu, 2024). Teachers' play perspective determines how they view the relationship among children, play, and deep learning. The occurrence of some children still not engaging in further exploration despite

teachers' cognitive support, and the emergence of laissez-faire phenomena in autonomous support, are inseparable from teachers' play perspective and role perspective. Therefore, teachers should enhance their understanding of independent play and senior class children's deep learning, and actively consider from which perspective they should observe and support children during practice, thereby promoting better deep learning exploration in children's independent play (Ji, 2023).

5.2 Flexibly Apply Various Support Strategies to Promote Balanced Development of Deep Learning

5.2.1 Cognitive Support to Promote Children's Planning

Give children sufficient planning time. Playing with plans not only improves children's play level but also has significant meaning for the emergence of deep learning (Lu, Cao, & Gu, 2019). Therefore, teachers should skillfully use cognitive support to help children understand their goals and plans, promoting children to clearly conduct play according to goals and plans, facilitating high-quality development of children's deep learning.

5.2.2 Emotional Support to Drive Children's Initiative and Activity Reflection

Deep learning includes children's positive learning attitudes, making it important to mobilize children's positive emotions. The summary and review phase is crucial for examining children's deep learning, where children improve their reflection and explanation abilities by evaluating and reflecting on their behavior, discovering problems, and finding solutions. Therefore, when children show low initiative and exploration desire during play, teachers can provide emotional support, such as encouraging children to find ways to overcome difficulties and respecting their ideas, helping children gain positive emotions during play. During the review and summary phase, teachers can use verbal cues, eye contact, and other methods to prompt or encourage children to boldly express their series of explanations about their works, helping improve their reflection and explanation abilities and enhancing their confidence in sharing works.

5.2.3 Productive Support to Cultivate Children's Persistence and Concentration

During play, teachers should help children reduce surrounding distractions; when children deviate from their plans or are distracted by surrounding matters, teachers can fully utilize productive support through simple and clear questioning to help children return to play, persist in following their plans until goals are completed, enhance children's persistence and engagement in independent play, and promote the development of concentration in children's deep learning.

5.2.4 Experience Support to Help Children Enhance Problem-solving Abilities

Professor Wang Xiaoying states: "Children's deep learning is problem-solving oriented" (Wang & Liu, 2020). Therefore, teachers should appropriately and scientifically provide experience support to help children enhance their problem-solving abilities. When children cannot overcome difficulties, teachers can provide experience support based on the situation, transmitting experience to children through their own demonstration during play, allowing children to gain experience and innovate from it. After play ends, teachers can adopt different levels of support for children at different development levels, helping them accumulate problem-solving experience. They can also appropriately extend play time, directly provide experience explanations to children during play, guide children to combine existing experience with new experience in play, and promote children's problem-solving abilities.

5.2.5 Autonomous Support to Create Opportunities for Children's Deep Learning

Autonomous support provides children with independent space but doesn't mean completely letting go. In this process, teachers need to use their sensitivity to observe children's behavior and not assume that autonomous support means merely letting children play by themselves. They should provide other support when necessary, helping children have maximum opportunities to explore materials. Autonomous support can maximize opportunities for children's deep learning, helping develop various aspects of children's deep learning (Draper, 2013).

Additionally, teachers' questioning methods during play are very important and appear in almost all support strategies. Teachers can both understand various aspects of children's play through questioning and stimulate the development of children's critical thinking, association and transfer ability, reflection ability, and problem-solving ability through questioning (Ning, 2022). Previous researchers believe questioning strategies can be divided into: recall questioning, understanding questioning, analysis questioning, and reflection questioning (Ning, 2022). Therefore, teachers can reference these four questioning strategies combined with their class's actual situation to conduct questioning, to more effectively guide children to understand materials, play methods, and other information, promote children's thinking about problem-solving, and ability to apply experience in play.

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Funding Project
This research is a preliminary result of the Teaching Reform Project at Zhaoqing University: "Research on the Construction and Application of the Practice Teaching Model for 'Behavior Observation and Analysis of Preschool Children' Based on 'Deep Cooperation Between Schools and Kindergartens'" (Project Number: ZLGC202255).

References

1. Chu, C. (2023). A case study on teacher support behaviors promoting deep learning in autonomous play [Master's thesis, Hebei North University]. https://doi.org/10.27767/d.cnki.ghbbf.2022.000241
2. Draper, S. W. (2013). Deep and surface learning: The literature. *Educational Research Journal*. Retrieved April 12, 2013, from https://www.edresearchjournal.com
3. Huang, P., Yang, T., & Yang, X. (2020). Relational thinking in early childhood deep learning. *Early Education (Educational Teaching)*, 2020(06), 7-9.
4. Ji, Y. (2023). Study on children's learning quality in outdoor autonomous play in Class A kindergarten in Qujing City [Master's thesis, Yunnan Normal University]. https://doi.org/10.27459/d.cnki.gynfc.2023.001421
5. Jin, K. (2022). A study on teacher support in large class autonomous play [Master's thesis, Jiangxi University of Science and Technology]. https://doi.org/10.27751/d.cnki.gjxkj.2021.000263
6. Lu, S., Cao, X., & Gu, H. (2019). Innovation and practice of game patterns to promote deep learning for young children. *Shanghai Educational Research*, 2019(07), 78-83. https://doi.org/10.16194/j.cnki.31-1059/g4.2019.07.020
7. Ning, Y. (2022). Questioning strategies to support deep learning in autonomous play for large class children. *Fujian Basic Education Research*, 2022(03), 128-130.
8. Wang, X., & Liu, S. (2020). The basic characteristics and logical framework of deep learning for young children. *Research in Preschool Education*, 2020(01), 3-10. https://doi.org/10.13861/j.cnki.sece.2020.01.001
9. Wang, X., & Liu, S. (2022). Implementation paths and core support elements of deep learning for young children. *Journal of Northeast Normal University (Philosophy and Social Science Edition)*, 2022(06), 151-158. https://doi.org/10.16164/j.cnki.22-1062/c.2022.06.017
10. Wu, T. (2024). Research on strategies to promote the development of children's learning quality in autonomous play [Master's thesis, Sichuan Normal University]. https://doi.org/10.27347/d.cnki.gssdu.2023.000472
11. Ye, P., & Li, X. (2023). A deep understanding and realistic review of deep learning for young children and its promotion. *Research in Preschool Education*, 2023(07), 13-24. https://doi.org/10.13861/j.cnki.sece.2023.07.010
12. Zhou, D. (2021). Reflections on the implementation of autonomous play in kindergartens. *Teacher Expo*, 2021(33), 75-76.

CITATION
Dai Yu, & Li Bing. (2024). Research on Support Strategies for Children's Deep Learning in Independent Play in Senior Class. In Global Journal of Research in Education & Literature (Vol. 4, Number 6, pp. 128–135). https://doi.org/10.5281/zenodo.14502522