

THE RELATIONSHIP BETWEEN YOUNG CHILDREN'S GRAPHIC NARRATIVE SKILLS AND READING BEHAVIOR: INSIGHTS FROM THE MATTHEW EFFECT

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Abstract: This study examines the relationship between children's storytelling abilities and reading behavior, comparing those with high and low abilities. Using the Matthew Effect, it suggests that children with high skills demonstrate greater engagement and attention in reading, strengthening their language and reading abilities through feedback loops. Twenty kindergarteners were assessed for narrative skills, and four were selected for six weeks of observation to record reading during self-directed activities. Results showed that high-picture-reading kids showed stronger interest and better attention, while low-picture-reading kids showed less interest, poor attention, and more distracted reading. This finding confirms the positive relationship between reading and storytelling and reading behavior in children, validating the Matthew effect. The researcher suggests three targeted educational recommendations.

Keywords: Pictorial storytelling; Reading behavior; Language skills; Matthew effect

1 INTRODUCTION

Picture narratives are activities in which teachers provide young children with multiple visual pictures, each with a plot that suggests a logical connection between the preceding and subsequent events, and children can logically narrate a complete event using the sequence of pictures [1]. Picture storytelling is of great value for young children's language development. On the one hand, it is an effective way to develop young children's complex language. When children look at pictures, they not only have to choose appropriate words and combine them into sentences according to grammatical rules, but also have to consider the organization of the content of the story in order to narrate in a sequential and organized way [2]. On the other hand, many studies have shown that young children's ability to read and narrate pictures may reflect their cognitive, thinking, emotional, and social abilities [3--5]. The development of narrative skills can promote the development of children's ability to express themselves in monologue out of context, and therefore plays an important role in the smooth transition from oral expression to literacy. Most studies have used color spectrum analysis to assess young children's narrative ability and present the characteristics of young children's narrative ability [6-7].

The Matthew Effect in reading, first proposed by Stanovich, refers to the widening gap between skilled and struggling readers over time due to differences in early reading ability and subsequent opportunities for reading experience. This creates a tendency for "the strong to get stronger and the weak to get weaker." [8-9] The gap between skilled and struggling readers grows over time, leading to an "upward trend for the skilled and a downward trend for the weak" [8]. The theory suggests that children who initially show small gains in reading skills will eventually show larger differences in reading ability, creating a cycle of advantage or disadvantage. The Matthew Effect has three aspects of reading and cognitive development in early childhood [9]. The first aspect is reciprocal causation and feedback. Early success in reading improves cognitive processes like vocabulary and comprehension, which makes reading easier and more rewarding. This creates a positive cycle. Difficulties can hinder this progress. Children who read less have fewer words in their vocabulary and background knowledge, which makes it harder for them to read and can create a cycle of disadvantage. The next difference is about reading practices. Strong readers read more in kindergarten and at home, giving them more chances to practice and get better at reading. They read more fluently and with better comprehension. Children who struggle with decoding and comprehension read less, which limits their exposure to text and chances for improvement. Finally, Stanovich focuses on the role of the reading environment. Children who are already advantaged with strong early literacy skills are more likely to be exposed to enriched reading environments, which further extends their advantage. Children who are disadvantaged may have limited access to texts and quality instruction, exacerbating their challenges. This paper explores the relationship between children's graphic narrative skills and reading behaviors using corpus information to analyze the level of young children's graphic narrative skills. Narrative skills affect young children's reading behaviors in the classroom [10]. A figurative presentation of the possible effects of graphic narrative skills on young children's reading behaviors in older classes is also presented.

2 METHODOLOGY

In this study, twenty children (10 boys and 10 girls) in the final year of kindergarten from the same class in a kindergarten in Nanjing were selected as participants. The participants were all children with normal development and no auditory and speech developmental disorders. Two children from both high and low narrative ability groups were chosen for a six-week naturalistic observation based on their scores.

In the first phase of the study, a testing method was employed to investigate the picture-narrative abilities of senior kindergarten children. The picture materials were selected from storytelling resources commonly used for senior kindergarten classes, specifically *"The Little Mouse and the Elephant"* and *"The Monkey Family Crossing the River."* In the context of the children's daily classroom environment, the researcher conducted one-on-one interactions with the children in a setting they were familiar with. By creating a positive and engaging atmosphere, the children were guided to independently narrate stories based on their observations of the pictures. The children's narrative responses were recorded and later transcribed for analysis.

The analytical and evaluation framework for children's narrative data primarily referred to the Dynamic Indicators of Basic Early Literacy Skills (DIBELS). The DIBELS framework comprehensively categorizes narrative ability into eight dimensions [6]: structural completeness, thematic relevance, narrative sequencing, linguistic clarity and fluency, sentence structure, use of dialogue, vocabulary level, and expressive language. Each dimension was scored on a scale of 1 to 3, and the total score was used to assess the picture-narrative ability of the children.

In the second phase, the researcher primarily adopted a non-participant observation method, supplemented by participant observation. The focus of the observation was on the children's behaviors during independent play in the activity areas, particularly their selection of the reading area, as well as the frequency, state, and specific behaviors exhibited while reading picture books during daily activities. These aspects were used as observation indicators to analyze and illustrate the reading behaviors of children with varying levels of picture-narrative ability.

3 RESULT

3.1 The Performance and Characteristics of Picture-Narrative Ability in Senior Kindergarten Children

By counting the frequency of scores on the eight dimensions of the children's graphic narratives at different levels (Table 1), it can be seen that the tested older children's ability to view graphic narratives varies across the dimensions, as shown below.

Table 1 Frequency of Scores at Different Levels Across Eight Dimensions

	Structure Completeness	Thematic Relevance	Tone Usage	Dialogue Usage	Time Marking	Expressiveness	Vocabulary Level	Sentence Structure
Level 1	2	0	12	24	29	18	1	6
Level 2	29	2	23	9	11	11	26	23
Level 3	9	38	5	7	0	11	6	11

3.1.1 Good performance on narrative relevance

Senior kindergarten children demonstrated a better ability to grasp the main content and plot development during picture-based narrative activities, as reflected in the dimension of "thematic relevance." The results show that all participants achieved Level 2 or above in "thematic relevance," indicating that most of them were able to accurately describe the main characters and core plot of the story. This finding suggests that the senior kindergarten children performed well in terms of thematic focus during picture-based narratives, with minimal deviation from the story's theme. They were generally able to narrate the main characters and plot development, accurately capturing the key events.

For example, in the story "The Little Mouse and the Elephant," children were able to construct their narratives around the core theme of "cooperation." The development of this ability reflects the children's logical thinking and their capacity to integrate visual information during picture-based storytelling. Through such activities, children gradually develop the skill to extract key events based on the visual content, laying a solid foundation for their future comprehension and expression in written language.

3.1.2. Relatively weak time-tagging skills and insufficient layering of narratives

Senior kindergarten children demonstrated weaker developmental levels in the dimension of "time marking." The results indicate that none of the participants achieved the highest level (Level 3), and most children used simple temporal conjunctions (e.g., "then") intermittently to connect events, without employing a richer variety of temporal adverbs or complex clauses to express temporal relationships between events. For instance, in 25% of the analyzed narrative samples, the word "then" appeared four or more times. A typical example of narrative progression was: "The little mouse cooked porridge, then there was too much firewood, then the elephant came, then it fanned, then the little mouse flew onto the tree." This indicates that children's use of "time marking" was overly simplistic.

While this linear expression ensures that events are narrated in chronological order, it lacks subtle layers of complexity and limits the marking of time to surface-level descriptions. It fails to reflect intricate causal or conditional relationships. The deficiency in time marking ability may be related to the developmental stage of the children's language skills, supporting existing research that highlights the immaturity of children's comprehension and use of complex sentence

structures (such as adverbial clauses or causal compound sentences) at this stage [11].

3.1.3 Language use exhibits significant gender differences

The results indicate that there are notable gender differences in the picture-narrative abilities of senior kindergarten children. Overall, girls outperformed boys, with significant differences observed in four dimensions: vocabulary usage, sentence structure, dialogue usage, and expressive language.

In terms of vocabulary usage, girls employed more specific and emotionally rich words when describing events, such as "bright red peaches" or "exhausted and drenched in sweat," while boys tended to use simpler nouns like "peach" and verbs like "fan" or "fall." Regarding sentence structure, boys preferred simple or compound sentences, while girls were more likely to use adverbial clauses, relative clauses, and causal compound sentences to convey complex logical relationships. For example, girls would narrate: "The elephant kept fanning with its eyes closed, not realizing the little mouse had flown onto the tree. The elephant looked at the mouse in confusion and asked, 'Why are you hanging on the tree?'" In contrast, boys often used simpler sentences such as "They crossed the bridge to eat peaches."

In the dialogue and expressiveness dimensions, girls included more dialogues and used varied tones and speeds to convey character interactions and emotions. For instance, a girl might mimic characters with emotional dialogues like, "Can't you help me put out the fire?" or "The monkey mother came out and said to her baby, 'It's such a beautiful day! Let's go play!'" Boys, however, relied on a single tone and expressed events more directly with fewer dialogues, such as "They walked out and crossed the bridge."

These gender differences may be attributed to socialization processes and developmental characteristics in language. Girls tend to focus more on detailed and emotional descriptions, reflecting their inclination toward emotional expression and linguistic detail. Boys, on the other hand, often prioritize the events themselves, resulting in a more straightforward and concise narrative style [12].

3.2 Differences in Reading Behavior in High and Low Graphic Narrative Skills Subgroups

The researchers selected two boys and two girls with typical performances from the 20 participants for long-term follow-up observation. The average picture-narrative scores of the four children were as follows: A (girl), 21.5; B (girl), 21; C (boy), 11.5; and D (boy), 9.5. Observations revealed differences between the high-scoring and low-scoring groups in their proactivity in choosing the reading area and their level of focus during reading activities.

3.2.1 Variations in initiative for selecting reading areas

During the six-week observation period, the children's class engaged in a total of 42 sessions of self-directed activity area play. The classroom was equipped with six regular activity areas: the Building Area, Doll Corner, Reading Area, Art Area, Science Area, and Puzzle Area. Table 2 shows the frequency statistics of the four children's visits to the Reading Area.

Table 2 Frequency of Children's Reading Area Selection

	A	B	C	D
Frequency	12	11	4	2
Total Percentage	28.6%	26.2%	9.5%	4.8%

The data results indicate a significant difference between the high-scoring and low-scoring groups in their proactive selection of the Reading Area during self-directed activity area play. The high-scoring children demonstrated noticeably higher proactivity compared to the low-scoring children.

To minimize systematic bias caused by external factors during the observation and data collection—such as instances where children could not select a specific activity area because it was already full—the researchers also recorded the frequency of children's selection of the Reading Area during routine transitional activities, such as after lunch or snack time. During these periods, the class offered three main self-directed activities for children to choose from: table games, plant corner observation and recording, and picture book reading. Over the six-week period, the researcher observed 39 instances of routine self-directed activities in the classroom. Table 3 shows the frequency statistics of the four children's selection of picture book reading.

Table 3 Frequency of Children's Independent Selection of Picture Book Reading During Daily Activities

	A	B	C	D
Frequency	17	15	5	6
Total Percentage	43.6%	38.9%	12.8%	15.4%

As with the results above, children in the upper subgroups actively chose picture books to read during daily independent classroom activities significantly more often than children in the lower subgroups.

3.2.2. Differences in reading interest and concentration

To further examine children's behaviors during reading activities, the researcher observed their specific actions while reading. Children with higher picture-narrative abilities (e.g., A and B) displayed greater interest in reading and higher levels of focus. High-scoring children were able to engage in picture book reading for extended periods. For instance, Child A spent considerable time on each page, actively asked questions, and shared the story with peers. Child B

demonstrated behaviors like recognizing words while looking at pictures and occasionally revisiting earlier pages. Both children showed strong interest in the content, completed books independently, and exhibited enthusiasm for exploring new books. They also tended to resist invitations to other activities and stayed focused on their reading.

In contrast, low-scoring children (e.g., C and D) showed lower interest and shorter reading durations. Child C often daydreamed and struggled to finish a book, while Child D flipped through pages quickly, sometimes laughing, but limited reading to two favorite books. Their reading was easily disrupted by external influences, such as leaving their seats or joining peers in other activities, reflecting low focus during reading.

These differences support the Matthew Effect, highlighting the reciprocal relationship between reading ability and picture-narrative skills. Children with higher narrative skills are more inclined to engage in reading and focus on it, which in turn reinforces their narrative abilities, such as their willingness to share stories during reading

4 IMPLICATIONS AND RECOMMENDATIONS

4.1 Identifying and Addressing Differences in Narrative Dimensions

Teachers should recognize that children's narrative abilities encompass eight dimensions: structural completeness, thematic relevance, narrative sequencing, linguistic clarity and fluency, sentence structure, use of dialogue, vocabulary richness, and language expressiveness. The study highlights significant differences across these dimensions and among individual children.

When designing activities, teachers should target specific areas of improvement. For example, to address weak time marking and logical sequencing, activities can feature images with clear time points, helping children understand the role of temporal markers in storytelling. Simple questions like "Why does the elephant fan the fire?" or "What happens if the elephant doesn't help?" can guide children to express cause-and-effect relationships, encouraging a shift from linear to more complex narratives.

For children with limited vocabulary, teachers can introduce descriptive words or phrases and encourage imitation. For instance, when describing "the elephant fanning the fire," teachers can add phrases like "fanning hard" or "fanning quickly" to enrich their vocabulary. Additionally, observing picture details with children and prompting the use of adjectives can further expand their expressive range.

4.2 Integrating Picture-Based Narratives with Reading Activities

Observations reveal that children's picture-narrative and reading abilities reinforce each other. Teachers can design language activities that combine these elements to enhance both skills. For instance, interactive storytelling games during free play can integrate picture book reading with role-playing. Children can narrate stories using their own words based on picture prompts and be encouraged to retell the storylines. This approach not only strengthens picture-narrative skills but also deepens children's comprehension and interest in reading [13].

4.3. Creating a Reading-Friendly Environment to Foster Engagement

The environment is not merely a passive backdrop but actively influences behavior through its structure and content. As Stanovich noted, a well-designed environment can stimulate interest and provide opportunities for practice and development [9]. A high-quality reading environment directly impacts children's interest and participation in reading.

To enhance engagement, the classroom reading environment should cater to diverse reading abilities and interests. Teachers can provide a variety of materials, including complex picture books for advanced readers and simpler, visually rich books for less proficient readers [14]. Comfortable reading spaces with soft cushions and chairs can make the reading area more inviting.

Additionally, teachers can increase opportunities for independent reading during free play and transitions. Role models can be established by encouraging children to share their favorite books or stories through class presentations or recordings, fostering a positive reading culture. Reward systems, such as reading logs or sticker charts, can further motivate children to choose reading activities and complete them consistently.

COMPETING INTERESTS

The authors have no relevant financial or non-financial interests to disclose.

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