International Platform of Registered Systematic Review and Meta-analysis Protocols

INPLASY

The Effects of Interactive Reading on Young Children's Narrative Abilities: A Meta-Analytic Study

INPLASY2025100086
doi: 10.37766/inplasy2025.10.0086
Received: 23 October 2025
Published: 24 October 2025

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ADMINISTRATIVE INFORMATION

Support - 2025 Chongqing Municipal Education Commission Humanities and Social Sciences Research Project (General Project; 25SKGH319) and Chongqing Preschool Education College under the Project "The Workstation of the Full-cycle Development Support System for Preschool Teachers" (2023GZZ-009）.

Review Stage at time of this submission - Completed but not published.

Conflicts of interest - None declared.

INPLASY registration number: INPLASY2025100086

Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 24 October 2025 and was last updated on 24 October 2025.

INTRODUCTION

Review question / Objective Experimental studies related to this topic are screened out, disputes existing in existing literature are discussed, and the regulating effects of children's age, interactive objects and intervention duration are further analyzed. Therefore, according to existing research contents, this study mainly discusses the following questions:
1. Evaluate the overall effect of interactive reading on the intervention effect of children's narrative ability, whether interactive reading can promote the development of children's narrative ability, and if so, what is the extent of its influence.
2. Age adjustment: Whether there are differences in the development of narrative ability of children of different ages in interactive reading, and if so, which age group can improve their mental health more.
3. Adjustment of interactive objects: whether different interactive reading objects have differentiated effects on the development of children's narrative ability, and if so, which interactive objects have the greatest impact.
4. Adjustment of intervention duration: whether there are differences in the intervention effects of interactive reading on children's narrative ability under different intervention duration.

Condition being studied The development of narrative abilities during early childhood forms the foundation for more complex language expression and comprehension later in life. This study employs a meta-analytic approach to systematically evaluate and inf er the effects of interactive reading on young children's narrative abilities.

METHODS

Search strategy (1) ["Young children" OR "preschoolers" OR "infants" OR "toddlers" OR "Child" OR "children"]; (2) ["shared book reading (SBR) "OR "shared reading" OR "interactive reading" OR "dialogic reading" OR "conversational reading"]; (3) ["narrative ability" OR "Oral Narrative" OR "Storytelling" OR "Narrative Skills" OR "Oral Narrative" OR "Narrative Skills"]systematic review and meta-analysis were carried out in accordance with the PRISMA guidelines. Chinese literature was retrieved from CNKI, while English literature was sourced from the Web of Science, ScienceDirect, SpringerLink, Taylor & Francis, Wiley, and the ERIC electronic databases. At the same time, the method of literature backtracking was used for literature supplementary search. Three sets of keywords were used to search: (1) ["Young children" OR "preschoolers" OR "infants" OR "toddlers" OR "Child" OR "children"]; (2) ["shared book reading (SBR) "OR "shared reading" OR "interactive reading" OR "dialogic reading" OR "conversational reading"]; (3) ["narrative ability" OR "Oral Narrative" OR "Storytelling" OR "Narrative Skills" OR "Oral Narrative" OR "Narrative Skills"]. The two coders searched a total of 2326 relevant studies in the database, deleted 218 duplicate data, and left 2108 references. After reading the literature in strict accordance with the inclusion criteria, 2079 literatures were excluded, leaving 29 qualified reports. Among the 29 studies, after careful reading again, one study with the same data published by the same author was excluded, one study whose subjects were not between the ages of 3-6 years old was excluded, and two studies with unclear data and incomplete mean and standard deviation were excluded. Finally, the remaining 25 studies were included in theanalysis.

Participant or population The study subjects were children aged 3-6 years without any cognitive, language or physical disabilities.

Intervention This study was composed of 25 interactive reading experiments with 123 effect sizes to explore the effects of interactive reading on children's narrative ability at different ages, different intervention duration and different interactive objects.

Comparator The narrative ability of children aged 3 to 6 develops naturally in natural situations.

Study designs to be included 1.The literature was an experimental or quasi-experimental study, randomly assigned to the experimental group and the control group to receive the intervention.2. Complete indicators such as mean and standard difference of the experimental group and the control group were clearly reported, and the data were complete so as to calculate the effect size.

Eligibility criteria

(1) Theoretical exploration, qualitative research and literature review

(2) No clear data is presented

(3) Exclude children beyond their age range and those with special needs

(4) The data has been published repeatedly.

Information sources Chinese literature was retrieved from CNKI, while English literature was sourced from the Web of Science, Science Direct, SpringerLink, Taylor & Francis, Wiley, and the ERIC electronicdatabases.

Main outcome(s) Based on Cohen's benchmarks (0.5 substantial), interactive reading has a moderate overall effect (g = 0.425) on narrative development. Significant gains occur across all age groups (3–4Y, 4–5Y, 5–6Y), with the 4–5Y cohort showing the peak effect (g = 0.635), marking a critical intervention window.

Among pedagogical agents, peer interaction is most effective (g = 0.675), exceeding the substantial threshold, followed by parental engagement (g = 0.597), researcher facilitation (g = 0.459), and teacher guidance (g = 0.164). This order underscores peer dialogue's unique role.

Effect size also increases with intervention duration: ≤8 weeks (g = 0.267), 9–16 weeks (g = 0.484), and ≥17 weeks (g = 0.644). All durations produce significant effects, but only programs lasting ≥17 weeks achieve a large effect, highlighting the value of sustained implementation.

Data management We use Zotero software for literature data management.

Quality assessment / Risk of bias analysis Publication bias refers to the fact that the results of "statistically significant" positive studies in existing studies are more likely to be published than those of "statistically significant" negative studies, resulting in a bias in the results of meta-analysis. The funnel plot method and Egger method were used in this study to test for publication bias. In the detection of funnel plot method, if there is no publication bias, the scatter points of funnel plot will be symmetrically distributed around the true value and tend to be concentrated in a narrow range. From the funnel plot of this study, as shown in Figure 2, the scatter-point distribution of the effect values of independent studies included in

the study had no obvious asymmetry, and most of them were in the middle region of the funnel plot and relatively evenly distributed on both sides of the median line, indicating that the possibility of publication bias was small. At the same time, the Egger linear regression test results show that the t value is 1.76 and the p value is 0.0803 ($p > 0.05$), indicating that there is no publication bias in this study and the meta-analysis results are relatively stable and reliable.The Cochrane risk of bias assessment tool in Revman software was used to evaluate the quality of the literature included in the meta-analysis, mainly from six areas, including selection bias, measurement bias, follow-up bias, reporting bias, implementation bias and other bias. For each indicator, high risk of bias, low risk of bias and uncertainty of bias were used to evaluate, as shown in the figure 4. If all the literatures are low-risk in the evaluation process, the quality grade of the literatures is grade A, and the possibility of bias is the least. If the risk is unknown in the process of literature evaluation, the quality grade of the paper is B, and there is a medium possibility of bias. In the evaluation process, as long as one item is high risk, the quality of the paper is level C, with a high possibility of bias (Liao et al., 2023). According to the results of bias risk assessment, there were 7 articles with grade A quality, 15 articles with grade B quality, and 3 articles with grade C quality. Among them, 10 literatures were not rigorous enough in randomization, could not specify the way of randomization, or simply grouped children according.

Strategy of data synthesis In this study, Stata17.0 software was used for meta-analysis, Hedges' g was used as the effect size, forest map, heterogeneity test, publication bias and other functions in the meta-analysis menu were used for analysis, and random effects model was selected. This study was composed of 25 interactive reading experiments with 123 effect sizes to explore the effects of interactive reading on children's narrative ability at different ages, different intervention duration and different interactive objects.

Subgroup analysis Significant gains occur across all age groups (3–4Y, 4–5Y, 5–6Y), with the 4–5Y cohort showing the peak effect ($g = 0.635$), marking a critical intervention window.

Among pedagogical agents, peer interaction is most effective ($g = 0.675$), exceeding the substantial threshold, followed by parental engagement ($g = 0.597$), researcher facilitation ($g = 0.459$), and teacher guidance ($g = 0.164$). This order underscores peer dialogue's unique role.

Effect size also increases with intervention duration: ≤8 weeks ($g = 0.267$), 9–16 weeks ($g = 0.484$), and ≥17 weeks ($g = 0.644$). All durations produce significant effects, but only programs lasting ≥17 weeks achieve a large effect, highlighting the value of sustained implementation.

Sensitivity analysis

1. Elimination analysis: We will successively eliminate each included study and re-conduct a meta-analysis to assess the impact of individual studies on the overall effectsize.
2. Analysis based on risk of bias: We will conduct a meta-analysis again after excluding any studies in any field that are determined to have a "high risk ofbias".
3. The influence of effect models: We will compare the results obtained by using fixed effect models and random effectmodels.
4. Excluding non-randomized controlled trials: If both RCTS and non-RCTs are included, we will conduct a sensitivity analysis by excluding non-RCTs to observe whether there are significant changes in the results.The funnel plot method and Egger method were used in this study to test for publication bias. In the detection of funnel plot method, if there is no publication bias, the scatter points of funnel plot will be symmetrically distributed around the true value and tend to be concentrated in a narrow range. From the funnel plot of this study,the scatter-point distribution of the effect values of independent studies included in the study had no obvious asymmetry, and most of them were in the middle region of the funnel plot and relatively evenly distributed on both sides of the median line, indicating that the possibility of publication bias was small. At the same time, the Egger linear regression test results show that the t value is 1.76 and the p value is 0.0803 ($p > 0.05$), indicating that there is no publication bias in this study and the meta-analysis results are relatively stable and reliable.The data reveal that this research is stable andreliable.

Language restriction Chinese and English.

Country(ies) involved China.

Keywords Interactive reading, Narrative abilities, Meta-analysis, Early Childhood Education, Language Education.

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