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Author/s	Divya Shantha Kumari Adinarayanan[1], Shanthi Nambi[2], Raman Krishnan[3] and Rajagopalan Vijayaraghavan[4]
Affiliation	[1,2,3,4] Department of Speech, Language, and Hearing Sciences, Saveetha Medical College and Hospital, Chennai.
Author ID	[1]0000-0002-9745-4396, [2]0000-0002-0198-7826, [3]0000-0002-3511-7968, [4]0000-0002-2805-5404 ↗

Let the child take the lead: Intervention for enriching parent-child interactions during shared book reading

Divya Shantha Kumari Adinarayanan**1**, Shanthi Nambi**2**, Raman Krishnan**3** and Rajagopalan Vijayaraghavan**4**

[1]Department of Speech, Language, and Hearing Sciences, Saveetha Medical College and Hospital, Chennai. Email: shanthakumaridivya@gmail.com

[2] Department of Psychiatry, Saveetha Medical College and Hospital, Chennai. Email: shanthi.nambi@gmail.com

[3]Department of Psychiatry, Saveetha Medical College and Hospital, Chennai. Email: dr_ramkrish@yahoo.com

[4]Department of Research and Development, Saveetha Institute of Medical and Technical Science. Email: jai_vijay@hotmail.com

Abstract

Shared book reading (SBR) emphasizes dialogue interaction between parents and children during book sharing, as engaging children in conversations during SBR can facilitate language skill development. This time-series study investigated the effect of SBR intervention on the interactional behaviors of parents and children (N = 210 dyads) and children's expressive language skill development. The parents in the experimental group received a five-week SBR online training. Parents in both the treatment and control groups audio-recorded reading storybooks with their children at baseline (pre-test), post-intervention (post-test 1), and follow-up stages (post-test 2). Response length, number of conversation turns, and children's expressive language ability were measured. Subsequently, the performance of the experimental and control groups was compared. The findings showed that parents in the experimental group were more responsive, offering significantly longer responses and more conversational turns than the control group. Additionally, children in the experimental group exhibited significantly greater expressive language skills. These findings suggest that the intervention can enhance parents' ability to facilitate conversations during SBR and improve children's expressive language skills.

Keywords: Parent-child interaction, shared book reading, linguistic input, language environment, language development, intervention

1. Introduction

Shared book reading (SBR), especially interactive reading, which involves specific techniques to scaffold conversations between an adult and a child about a book, has been shown to positively impact children's language skills (Noble et al., 2019). Conversations between an adult and child

are essential for language development, and parents should actively engage in discussions during SBR (Zimmerman et al., 2009). Previous research has demonstrated that children are more likely to continue a conversation if they receive an explanation from a parent in response to "how" and "why" questions (Frazier et al., 2009). This finding highlights how interactive features, such as responding to a child's inquiries, can facilitate the development of syntactically complex language and encourage discussions about abstract topics, ultimately promoting language and knowledge acquisition.

Given the importance of interaction, Rivers (1983) contends that learners can build up their language store as they read or listen to authentic linguistic material through interaction or their interlocutors' contributions to discussions and joint problem-solving tasks. Furthermore, as Tomlinson (2008) suggests, the fundamental principles and pre-requisites for language acquisition are that learners are exposed to rich, meaningful comprehensible language input, and, in order for learners to maximize their exposure to spoken language, they need to be engaged both affectively and cognitively in the language experience. Therefore, it is helpful for children if the conversation is responsive, linguistically adapted to their level, and conceptually challenging (Rowe & Snow, 2020). Unfortunately, this kind of conversation is less common than expected due to parents' busy schedules, resulting in occasional pauses in the narrative, questions, or commentary on children's responses (Figure 1). Additionally, parents may assume children can comprehend by merely listening to the reading or may lack the time or skills to facilitate interactive opportunities (Golinkoff et al., 2019).
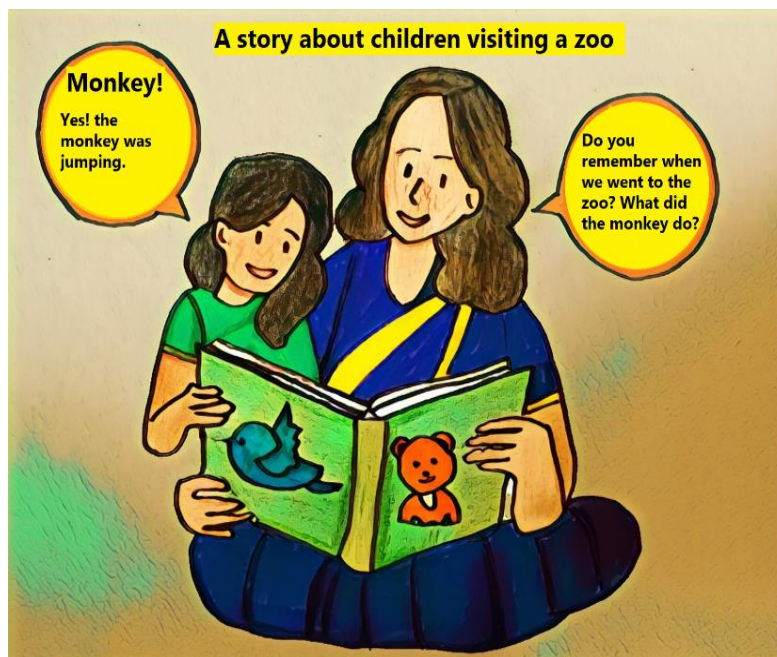

Figure 1: A hand-drawn representation of Interactive shared book reading

Given the importance of interaction and engagement in language development, the study aimed to explore the effect of SBR intervention on the interactional behaviors of parents and children and childrens' expressive language skills.

2. Methods

To explore the effect of SBR intervention on the interactional behaviors of parents and children and childrens' expressive language skills, a time series design was undertaken using a time series approach. This consisted of three stages: pre-test (baseline), post-test one (one week after the intervention), and post-test two (two months after the intervention). Middle-income college-educated parents and typically developing four to six-year-old children from Tamil Nadu (India). Two hundred and ten parent-child dyads were explored: control group 105; experimental group 105. Control group parents read storybooks to the children without training. Conversely, the experimental group received five weeks of training and then participated in a one-on-one book reading with parent-child interaction. Children's and parents' behavior and outcomes were measured to determine the beneficial effects of the intervention compared to the control group. Three areas were investigated: (1) the length of the parent's response, (2) conversational turns that follow a question/comment made by a child, and (3) child's expressive language skills. All participants in the control and treatment groups consented to participate. The data were drawn from a subset of data from Adinarayanan et al. (2022), and the study was approved by Saveetha Medical College and Hospital Institutional Ethics Committee (SMCH-IEC) (002/06/2021/IEC/SMCH)

2.1 Training

The experimental group attended five one-hour weekly online training sessions. The training focused on parental responsiveness during SBR, a language facilitation technique related to expressive language skills (Roberts & Kaiser, 2011). The initial online parent training detailed the benefits of interactive SBR with children because understanding the value of reading and literacy appears to help parents use high-quality strategies (O'Fallon et al., 2022). The sessions involved explaining to the parents to (1) take the child's lead, (2) take equal conversation turns, (3) increase the quality of talk, (4) respond immediately, warmly, and enthusiastically after a child starts interacting during a book reading session, (5) respond by saying something related to, comment on, or ask a question about what the child said, (6) the parent insists on going beyond what was written or illustrated in the book, (7) when the child says something, the parent should add words to expand the child's speech. The training focused on these skills because when parents are more responsive and fine-tune how they talk with their children, their children's communication development is accelerated (Leung et al., 2021).

2.2 Measurements

Each parent-child dyad from the treatment and control groups were audio-recorded and transcribed during three phases: before the training (pre-test), one week after training (post-test 1), and after two months (post-test 2). Parents' and children's verbal behaviors were assessed in three areas: length of responses, conversational turns, and child's expressive language skills.

2.2.1 Length of the responses

Parents' responses to child's questions and comments were classified into single and multiple-word responses. Table 1 provides code descriptions and examples.

2.2. Conversational turns

Conversational turns were coded as (P) for parent conversational turns, and (C) for child conversational turns. A conversational turn is what one speaker says about a topic, which could include several consecutive utterances (Cabell et al., 2015). Coding for conversational turns began when a child posed a question or comment to the parent and continued until the end of the conversation. Table 1 provides code descriptions and examples.

Turn-taking was scored as high when a parent appropriately responded to a child's request, when the parent's talk was child-appropriate and elicited a child's response and engagement, and when the parent adjusted the interaction style to meet the child's needs. Conversely, turn-taking was scored as low when the parent did not ask questions or direct the conversation, disregarding the child's interest.

Table 1. Sample conversation before intervention

Speaker	Utterance	Conversational turns	Length of conversation
c	Park	1	-
p	That's right. What is he doing there?	2	Multi words
c	Slide	3	-
p	Yes, he is sliding. Can you say that?	4	Multi-word
c	He is sliding	5	-
p	Good. Is he going up or down?	6	Multi-word
c	Slide down	7	-

Note: P=Parent conversational turns C=child conversational turns

2.2. Child's expressive language skills

To measure a child's expressive language skills, the Communication DEALL (Developmental Eclectic Approach to Language Learning) checklist was utilized (Karanth, 2011), a criterion-referenced developmental checklist for the Indian population. The communication DEALL checklist was administered considering its applicability to children speaking varied languages and its ease of use for online assessment.

2.5 Statistical analysis

The non-parametric Kruskal-Wallis one-way ANOVA on ranks with Tukey's multiple comparison test (post hoc test) was used for the data analysis of each indicator: length of response, conversational turns, and child's expressive language. Statistical analysis and graph plotting were performed using SigmaPlot version 14.5.

3. Results

The study explored the effect of SBR intervention on the interactional behaviors of parents and children, as well as the child's expressive language skills. Specifically, three areas were investigated: the length of responses, conversational turns, and the child's expressive language skills.

3.1 Length of the responses

The length of responses was measured by examining how parents responded to their child's questions or comments, specifically focusing on whether they used one-word or multi-word responses. The results indicated that parents who received the intervention were more likely to use multi-word responses compared to those in the control group, who frequently responded with only one word (Table 2).

The median of single-word responses in the control group (one) remained consistent from the pre-test to post-tests 1 and 2. However, in the experimental group, the median of single-word responses was initially one in the pre-test, but decreased to zero single-word responses in post-tests 1 and 2. This change was found to be statistically significant ($p < 0.001$).

Likewise, the median of multi-word responses in the control group remained unchanged across all tests. However, in the experimental group, there were no multi-word responses in the pre-test. Following the intervention, the median increased to two in post-test 1 and four in post-test 2. This change was also statistically significant ($p < 0.001$).

Table 2. Comparison of control and experimental groups on the frequency of single-wor and multi-word responses.

S.No.	Parameter	Groups	Median	Percentile	Statistical analysis
1	Frequency of single word responses	Con-Pre-test	1	1 – 1	H = 282.033 $p < 0.001$
		Exp-Pre-test	1	1 – 1	
		Con-Post-test 1	1	1 – 1	
		Exp-Post-test 1	0 *	0 – 1	
		Con-Post-test 2	1	1 – 1	
		Exp-Post-test 2	0 *	0 – 0.5	
2	Frequency of multi-word responses	Con-Pre-test	0	0 – 0	H = 581.189 $p < 0.001$
		Exp-Pre-test	0	0 – 0	

Con-Post-test 1	0	0 – 0
Exp-Post-test 1	2*	2 – 3
Con-Post-test 2	0	0 – 0
Exp-Post-test 2	4*	3 – 5

Note. Con = Control; Exp = Experimental

n = 105 each.

The 'H' and 'p' values are indicated by the Kruskal Wallis one-way ANOVA on ranks with Tukey's multiple comparison test (post hoc test)

*Significantly different from the control groups' pre-test, post-test 1, and post-test 2

3.2 Conversational turns

The second indicator was how parents responded to children's questions, as shown by the number of conversational turns (Table 3). The median of conversational turns (two) remained unchanged during the control group's pre-test, post-test one, and post-test two. However, in the experimental group, the median of conversational turns increased from two during the pre-test, to five during post-test one and eight during post-test two. This increase was statistically significant, with a p-value of less than 0.001.

Table 3: Comparison of control and experimental groups on conversational turns

S.No.	Parameter	Groups	Median	Percentile	Statistical analysis
3	Conversational turns	Con-Pre-test	2	2 – 3	H = 481.565 $p < 0.001$
		Exp-Pre-test	2	2 – 3	
		Con-Post-test 1	2	2 – 3	
		Exp-Post-test 1	5*	4 – 6	
		Con-Post-test 2	2	2 – 3	
		Exp-Post-test 2	8*	7 – 9	

Note. Con = Control; Exp = Experimental

n = 105 each.

The 'H' and '*p*' values are indicated by the Kruskal Wallis one-way ANOVA on ranks with Tukey's multiple comparison test (post hoc test)

*Significantly different from the control groups' pre-test, post-test 1, and post-test 2

3.3 Expressive language skills

Finally, the study aimed to investigate the potential positive impact of changes in parent behavior on a child's expressive language skills. The Communication DEALL checklist was employed to assess changes in the child's expressive language skills. In the pre-test, the control group exhibited a median score of 126, which remained consistent during the subsequent measurement, post-test 1. However, in post-test 2, the score increased to 129, yet this was not significant. Conversely, the experimental group demonstrated a median score of 126 in the pre-test. Subsequently, the score increased to 132 in post-test 1, and further increased to 142 in post-test 2 (see Figure 2). The observed increase in score for the experimental group was found to be statistically significan (p < 0.001).
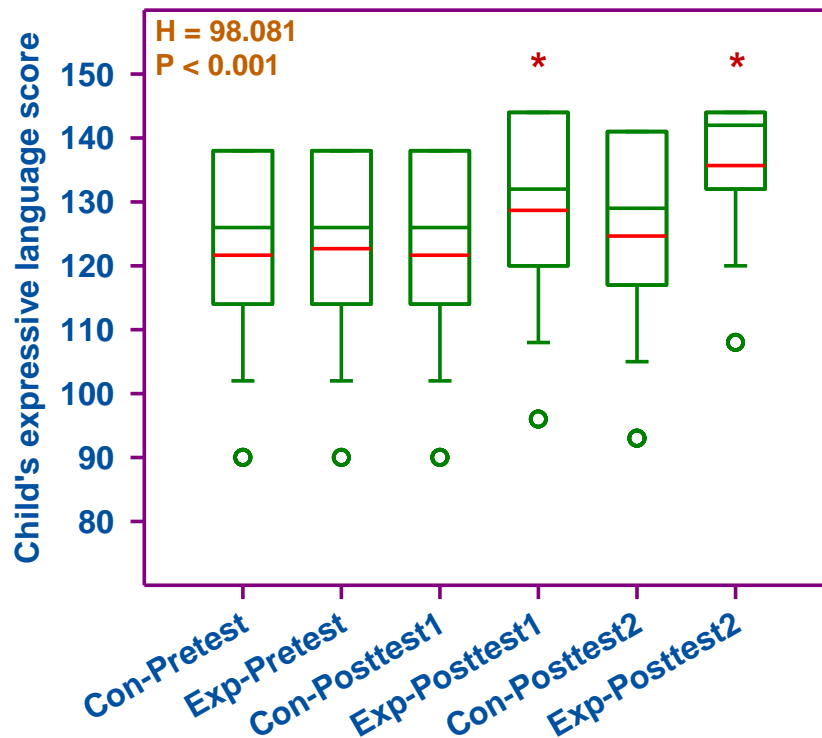

Figure 2: Comparison of children's expressive language scores in the control and experimental groups.

Note. middle green line = median; red line = mean

n = 105 each.

The 'H' and '*p*' values are indicated by the Kruskal Wallis one-way ANOVA on ranks with Tukey's multiple comparison test (post hoc test)

*Significantly different from the control groups' pre-test, post-test 1, and post-test 2

4. Discussion and Conclusion

The study examined the impact of SBR intervention on the interactional behaviors of parents and children, as well as children's expressive language ability during SBR. The results indicated that the SBR intervention has significantly positive effects when used with Indian middle-class parents and children, as evidenced by (a) the length of the parent's response, (b) conversational turns, and (c) improved child's expressive language skills as measured by the Communication DEALL checklist. Specifically, the findings showed that parents who received the intervention were more likely to use extended, multiple-word responses than those who did not. These results are consistent with previous research (Noble et al., 2020) that suggested SBR intervention successfully modifies parents' SBR styles. Additionally, the study demonstrated a significant increase in conversational turns between parents and children following the intervention. This aligns with Leech and Rowe (2020), who similarly observed a notable increase in conversational turns after intervention. Finally, the results indicated that children in the experimental group achieved significantly higher expressive language scores than those in the control group. These results potentially have practical implications for those working with children, including speech-language pathologists, educators, teachers, and parents. Nevertheless, the study has inherent demographic and contextual limitations that provide opportunities for future research. For instance, the study was conducted with college-educated and middle-income parents and their children in the Indian context. Therefore, it is suggested that future studies explore interventions beyond the educated population and in different regional contexts.

Declaration of Conflicts of Interests
The author(s) declare no potential conflicts of interest.

References

Adinarayanan, D. S. K., Nambi, S., Krishnan, R., & Vijayaraghavan, R. (2022). Evaluation of Narrative Dowdall, N., Melendez-Torres, G. J., Murray, L., Gardner, F., Hartford, L., & Cooper, P. J. (2020). Shared Picture Book Reading Interventions for Child Language Development: A Systematic Review and Meta-Analysis. Child Development, 91(2). https://doi.org/10.1111/cdev.13225Skills of Children and Language Inputs of Parents During Shared Book Reading. A Parent-Mediated Home-Based Intervention Study. *Journal of Indian Association for Child and Adolescent Mental Health*, 097313422211338. https://doi.org/10.1177/09731342221133845

Cabell, S. Q., Justice, L. M., McGinty, A. S., DeCoster, J., & Forston, L. D. (2015). Teacher–child conversations in preschool classrooms: Contributions to children's vocabulary development. *Early Childhood Research Quarterly*, *30*, 80–92. https://doi.org/10.1016/j.ecresq.2014.09.004

Frazier, B. N., Gelman, S. A., & Wellman, H. M. (2009). Preschoolers' Search for Explanatory Information Within Adult-Child Conversation. *Child Development*, *80*(6), 1592–1611. https://doi.org/10.1111/j.1467-8624.2009.01356.x

Golinkoff, R. M., Hoff, E., Rowe, M. L., Tamis-LeMonda, C. S., & Hirsh-Pasek, K. (2019). Language Matters: Denying the Existence of the 30-Million-Word Gap Has Serious Consequences. *Child Development*, *90*(3), 985–992. https://doi.org/10.1111/cdev.13128

Karanth, P. (2011). The Communication Deall Developmental Checklist - Inter-rater Reliability. *Disability, CBR and Inclusive Development*, *22*(1), 48. https://doi.org/10.5463/dcid.v22i1.9

Leech, K. A., & Rowe, M. L. (2021). An intervention to increase conversational turns between parents and young children. *Journal of Child Language, 48*(2), 399–412. https://doi.org/10.1017/S0305000920000252

Leung, A., Tunkel, A., & Yurovsky, D. (2021). Parents Fine-Tune Their Speech to Children's Vocabulary Knowledge. *Psychological Science*, *32*(7), 975–984. https://doi.org/10.1177/0956797621993104

Noble, C., Sala, G., Peter, M., Lingwood, J., Rowland, C. F., Gobet, F., & Pine, J. M. (2019). The impact of shared book reading on children's language skills: A meta-analysis. *Educational Research Review*, *28*, 100290. https://doi.org/10.1016/j.edurev.2019.100290

Noble, C., Cameron-Faulkner, T., Jessop, A., Coates, A., Sawyer, H., Taylor-Ims, R., & Rowland, C. F. (2020). The Impact of Interactive Shared Book Reading on Children's Language Skills: A Randomized Controlled Trial. *Journal of Speech Language and Hearing Research*, *63*(6), 1878–1897. https://doi.org/10.1044/2020_jslhr-19-00288

O'Fallon, M. K., Alper, R. M., Beiting, M., & Luo, R. (2022). Assessing Shared Reading in Families at Risk: Does Quantity Predict Quality? *American Journal of Speech-language Pathology*, *31*(5), 2108–2122. https://doi.org/10.1044/2022_ajslp-22-00013

Rivers, W. M. (1983). *Communicating Naturally in a Second Language: Theory and Practice in Language Teaching*. Cambridge [Cambridgeshire] ; New York : Cambridge University Press.

Roberts, M. Y., & Kaiser, A. P. (2011). The effectiveness of parent-implemented language interventions: A meta-analysis. *American Journal of Speech-Language Pathology*, 20, 180–199. https://doi.org/10.1044/1058-0360(2011/10-0055).

Rowe, M. L., & Snow, C. E. (2020). Analyzing input quality along three dimensions: interactive, linguistic, and conceptual. *Journal of Child Language*, *47*(1), 5–21. https://doi.org/10.1017/s0305000919000655

Tomlinson, B. (2008). *English Language Learning Materials: A Critical Review*. Bloomsbury Publishing.

Zimmerman, F. J., Gilkerson, J., Richards, J. G., Christakis, D. A., Xu, D., Gray, S., & Yapanel, U. H. (2009). Teaching by Listening: The Importance of Adult-Child Conversations to Language Development. *Pediatrics*, *124*(1), 342–349. https://doi.org/10.1542/peds.2008-2267

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Divya Shantha Kumari Adinarayanan has taught communication sciences and worked with children and adults with speech, language, and hearing disorders. Her research interests include the effects of parent-child interaction during shared book reading with young children.

Shanthi Nambi has been an active academician in psychiatry for more than two decades. Her publications include books on psychiatry and articles in national and peer-reviewed journals.

Raman Krishnan has done his postdoctoral fellow in child and adolescent psychiatry and workedwith children with ADHD, autism, school refusal, and anxiety disorders.

Rajagopalan Vijayaraghavan has worked as a research associate, scientific advisory board member, and research director at various universities. His field of research is drug discovery, formulation and delivery systems, and safety evaluation of chemicals. He has patented over 40 processes and products and published extensively in peer-reviewed journals.