

A literacy intervention for preschool children in Bangladesh: the benefits of dialogic reading

ECD Research Report 1



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Foreword

We are very pleased to publish the first issue of the research report series on early childhood development. This report on early literacy development is based on experiment conducted at BU-IED in 2006.

With the overall aim of contributing to early childhood development in Bangladesh, BU-IED has taken initiatives to conduct studies and experiment in order to adopt relevant standard child development methods and approaches to the rural and urban contexts of Bangladesh. This report describes the first of such initiatives which is aimed to improve the vocabulary of young children in preschools. The positive results of this intervention have encouraged us to plan a trial on a larger scale for incorporating the methodology in the regular curricula of the preschool programme.

Different studies show that children from poor families lack readiness for primary school. For a variety of reasons, they lag behind their more privileged counterparts on vocabulary and literacy skills. This is partly due to less time given to reading storybooks to children or letting them hear new stories in the preschool years. This is particularly a problem in Bangladesh where books are not available in rural areas and many parents are not literate themselves. Preschool programmes being implemented by different organizations attempt to address this gap. However, available studies show that the results are not very impressive. In this context, the experiment with the 'dialogic reading' approach in five randomly selected preschools was undertaken. Statistically significant increase in children's expressive vocabulary was observed, as the study report shows.

I congratulate the research team for its hard work and thank those, including Save the Children (USA) and Village Education Resource Centre (VERC), who have given total cooperation and support to the research team.



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Abstract

The purpose of the study was to examine the efficacy of a 4-week dialogic reading intervention with rural Bangladeshi preschoolers with the intention of increasing their expressive vocabulary. Eighty preschoolers randomly selected from five preschools participated in the program during four weeks in the summer of 2006. Their expressive vocabulary was tested on 170 challenging words before and after the program and compared with that of control children who participated in the regular language program. Both groups were read eight children's story books with illustrations, but the dialogic reading teacher was given a set of "wh" and definitional questions to enhance children's verbal participation during reading. Results confirmed that the mean vocabulary scores of dialogic program children increased from 26% to 54% whereas the control children remained at the same level. In conclusion, the dialogic reading program which can be tailored to suit the skills of paraprofessional teachers allows children to quickly improve their vocabulary with the help of challenging stories.

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Introduction

It is well-recognized that children from families who are poor and without formal education may not possess readiness skills for primary school (Aboud, 2006; Britto & Kohen, 2005). For a variety of reasons, children from lower socioeconomic communities lag behind their counterparts on vocabulary and literacy skills (Evans, 2004). This is partly due to less responsive and sophisticated adult communication and less time being read storybooks or hearing new stories in the preschool years. This is particularly problematic in countries such as Bangladesh where books are not available in rural areas and many parents are not literate themselves (Aboud, in press). Under these conditions, preschool teachers must provide the language stimulation necessary to develop children's pre-literacy skills. Because of its importance for future reading competence, strategies to improve

children's vocabulary are being evaluated (e.g. Senechal, 2006; Snow, 2006). One easily implemented strategy includes story book reading which can provide opportunities for age-appropriate and responsive language. The current study evaluated a 4-week intervention in rural Bangladeshi preschools to improve children's vocabulary using dialogic or shared reading, before implementing it on a larger scale.

In Bangladesh, preschools are still relatively new and their quality is the subject of extensive study. A recent survey in Bangladesh shows that a total of 147 organizations, most of which are non-governmental, have preschool programs attended by about 790,000 children (ECDRC, 2006). They are expanding rapidly and considered essential in order to prepare children for primary school, reduce the drop-out rate, and increase the number of children



passing fifth grade competencies. Prior evaluations indicated that in some respects their quality was moderate -- 3.5 out of 7 on the Early Childhood Environment Rating Scale (ECERS, Aboud, 2006). After implementing a number of recommendations, 10 pilot preschools reached an average of between 4 and 5 on the two important subscales of Activities and Program Structure (Moore, Akhter, & Aboud, 2005). This was accomplished within a year at minimal extra cost. New materials and activities included 50 storybooks instead of only 10, more constructive play materials such as blocks and puzzles, and teacher training in responsive talk.

Benefits were passed on to the children who attended the pilot preschools in comparison to those who attended the regular program, matched for ECERS score the year before. In particular, pilot children showed greater improvements in Block Design and Matrices, both measuring visual analytic reasoning that would later support math skills (Moore et al., 2005). However, children's vocabularies did not increase much from the beginning to the end of the year. Action research conducted during the 7-month implementation of the pilot program indicated some limitations in the use of story books which could potentially increase children's vocabularies. In particular, the paraprofessional teachers were unable to talk about the events or characters in a way that went beyond the text. Their questions required either a yes/no response or the repetition of a phrase from the story.

A number of new language activities have been successfully tried elsewhere with children from 2 to 7 years of age to improve their vocabulary. The rationale is that vocabulary is an important pre-

reading skill associated with later reading competence (Storch & Whitehurst, 2002). Oral vocabulary, both receptive and expressive, is positively associated with reading competence at least through grade 4 and probably beyond (Storch & Whitehurst, 2002). Vocabulary develops rapidly in the preschool years but there is wide individual variation: mothers' reports reveal that 10-month-old children may comprehend anywhere from 11 to 154 words, and by the age of 6 it may increase to 14,000 (Hoff, 2006). Systematic intervention in the pre-primary years is therefore important to increase vocabulary in order to facilitate reading in primary school.

Among the interventions aimed at improving vocabulary, the one most suited to rural Bangladesh involves dialogic storybook reading in the preschool context. Parents are unlikely to have books at home or to talk with children about pictures in a way that extends vocabulary (Aboud, in press). However, most preschool teachers have one 60-minute language period every morning with time for reading stories. Dialogic reading is a form of shared storybook reading in which the adult reader engages the child(ren) in a verbal dialogue about the story (e.g. Lonigan & Whitehurst, 1998; Whitehurst, et al. 1994). Children are actively engaged in expressive language when the teacher asks open-ended "wh" questions and pursues the child's answer with a further extension or question. The procedure was successfully used in a 4-week program by Hargrave and Senechal (2000) to improve the vocabularies of children 3 - 5 years who had lower vocabularies than expected for their age. As in the Whitehurst studies, the teacher was trained with the help of a video and personal practice to ask "wh" questions, to follow the child's answers with

questions, repeat the child's answers, praise and encourage the child, and have fun. Unlike the Whitehurst studies, Hargrave and Senechal read to larger preschool groups of 8 and compared them with groups of preschoolers read to in the usual manner. The parents of children in each group were also asked to read provided books five times weekly in the same manner as the teacher (though this was not always done). The dialogic reading group received higher scores on the expressive vocabulary test especially one that tested vocabulary from the 10 books. Expressive vocabulary was measured by picture naming because many of the children were quite young. Still the scores were low and the effect size was small.

The goal of the present study was to examine improvements in expressive vocabulary of preschool children (5-6 years) who participated in a teacher-implemented dialogic reading program using eight books over 4 weeks. The control group of children attended preschools of the same organization and were read the same books daily in their usual manner. Because these children were older than the Hargrave and Senechal students, they were required to provide definitions of the tested words which came from the storybooks. We expected the intervention group to show greater gains than the control children.

Method

Design and sample size estimation

The design was a pre-post assessment of an intervention and control group. Using an alpha of .05 and power of .80, the sample size was 80 per group to find a difference of .5 SD. Therefore there were 5 preschools per group with 16 children

in each school. Scientific and ethical approval of the protocol was provided by a review committee of academics and researchers in this field convened by BRAC University's Institute of Educational Development.

Preschool setting

Children were selected from 10 preschools in the rural sub-district of Kaligong in Bangladesh. Out of 41 preschools run by Village Education Resource Centre (VERC), five were randomly selected to be intervention schools and five to be controls. The organization had been operating early childhood programs since 1988 and recently began using the program and materials provided by Save the Children, US. Thus, all their current learning materials, operating costs, and teacher training were provided by Save the Children. In the usual program, teachers had a daily language time of 45 - 60 minutes during which to read one of the provided stories and talk with the children about the characters and events. They also used some of the time to have children present their "morning news", recite rhymes and learn the alphabet.

The education attainment of the preschool teachers, who usually came from the village, ranged from Grade 10 to Grade 12. They received one week of training in early childhood education at the beginning of the school year and one day each month on how to implement the lesson plans for that month. Most had less than one year's experience in preschool teaching. Teachers received 800 taka or about US\$12 per month as an honorarium provided by the organization. The dialogic reading program was implemented in the sixth month of the school year.



Participants

Sixteen students from each of the 5 intervention and 5 control preschools were randomly selected, from class lists of 20 - 25 children, to participate in this study. Consent was obtained from their parents to assess children's vocabulary and to interview mothers for information on the child's age, her education and family assets. The other children attended classes as usual but were not interviewed. Of the 80 children enrolled for each group, 75 from the intervention group and 78 from the control group were present to take the posttest. Consequently data from 153 children were analyzed.

Measures

The goal was to assess the acquisition of new expressive vocabulary learned through story reading. In the absence of any list of age-specific words for these Bengali-speaking children, a list was

created of words that fit two criteria: they should be known to grade 1 or 2 children but unknown to preschoolers, and they should be used in the story books. A list of difficult words was first selected from the grade 1 and 2 readers and used to test the expressive vocabulary of first and second graders. Words largely unknown to them were excluded from the test. This new list was then administered to children of several preschools; words known to most of them were excluded. The final list of 170 words constituted the vocabulary test. Using instructions from expressive vocabulary tests, research assistants blind to the child's group asked, What is ___? After a partial answer, children were probed for more. Answers were scored 0, 1, or 2 according to the number of defining features or functions given. Two of the researchers coded and scored the answers, and a third checked 20% of each group; no changes were required.

Testing procedure

A group of 10 female research assistants, with university degrees in different disciplines, conducted the pre- and post-tests as well as mother interviews. Four assistants had prior extensive experience assessing preschool children using measures such as the WPPSI vocabulary test. For this study all received a half-day training before the pretest and again before the posttest on how to interact with the children, how to ask for definitions, and how to record the responses. Children were pretested during the few weeks before the reading intervention and posttested one-week after its completion, that is 6 - 7 weeks after the pretest.

Preschool Intervention

Books and materials. The intervention started in mid-July 2006 and continued for 4 weeks. Eight fiction story books for preschoolers recently created and published by the Early Childhood Development Resources Center at the BRAC University Institute of Educational

Development were used because they were unfamiliar to the children. The books were selected on the basis of the following criteria: each book contained a sufficient number of new words that were appropriate for 5-year-olds but unknown to most, story plot was interesting and the illustrations were attractive to preschoolers and helpful for teachers explaining the story. Books were 11-14 pages in length and had quarter a page of text with full page illustrations in the background. They were created for Bangladeshi preschoolers and similar to age-appropriate story books currently used by these preschools. The stories in the books were modified slightly to include words from our list of 170 words. Altogether, the 8 books contained all the 170 words on the vocabulary test. Both intervention and control preschools received and used the same 8 books over the 4-week period. However, only the intervention teachers were provided with and trained to use the sample open-ended questions to be described; only the



intervention schools received picture cards of the new words (see description below).

Sample "wh" questions for each of the books were prepared to guide the teachers' dialogue when reading the stories in a dialogic manner. This was considered necessary given the teachers' lack of extensive education in early childhood education and their inability in previous programs to ask thought-provoking questions. Some questions asked about the meaning of new words (e.g., What is a boat? What does a boat do? Has anyone ridden in a boat?), and some about the causes and consequences of events (e.g., What happened when Kutus fell from the boat? How was he rescued?). We provided about 10 sample questions for each book but in practice teachers added their own questions particularly for the vocabulary words.

Because some of the new words inserted in the books were not available in the illustrations, picture cards were prepared to illustrate most of the new words. They were used by the teachers to discuss certain words and were available during play time for children to handle and discuss with peers.

Dialogic story reading procedure. Both dialogic and regular reading took place with the whole class of 20 to 25 children. The initial plan was that the teacher would read each of the books over the course of 3 days: reading the complete story on the first day, and again on the third day, with discussion on the second day. However, in a pilot run, children refused to listen to the repeated story, saying they already knew the story and they wanted another. So the story was read in thirds with open-ended questions asked about the parts just read. This way, one book was covered in three days with 30 - 40 minutes per day, and two books in a 6-day week.

Teacher training and Supervision. Five-day training was provided to the 5 dialogic reading teachers as well as 5 program organizers who supervised the preschools. Because the teachers were paraprofessionals, they were provided with the sample questions and answers as well as intensive training on how to conduct the reading, formulate questions, use the illustrations of the book to elaborate the story, use the picture cards, give real life examples so that children understood better, and engage children in responsive talk. However, as training progressed, teachers became confident about creating their own questions and not relying on the sample questions-and-answers provided to them. This was also observed during the actual classroom reading.

Training started by watching two videos: one showing a teacher reading a story book to children in a traditional manner and another in a dialogic manner. After watching the first video, the teachers identified many problems with her reading. After the second video, teachers noticed the differences in both the reading and the children's responses. Then teachers watched a live demonstration of how to read a story book in a dialogic manner, use the illustrations and the picture cards, formulate questions and relate an answer to a real life example. Each of the teachers was then asked to read a book in a dialogic manner. The other participants played the role of children. Problems were corrected through discussion. This practice continued for 3 days to allow each teacher to read each of the 8 books individually. Then they were taken to a nearby preschool to practice with children. This experience helped a great deal.

Supervision was also provided to the teachers during the 4-week intervention. Each school was visited almost every day

to ensure that classes were held regularly and instructions followed. In the beginning of the program, most of the teachers had problems ensuring child participation because this was unfamiliar to the children. However, they overcame the problem in a few days.

or a question that required children to repeat a phrase from the text. They used the book illustrations and local words to help explain the story. The same procedure was followed when the book was read a second time during that month. The control schools were also



Control story reading procedure. Teachers of control schools were given the same 8 books. However, they read them in the usual manner. As usual, they received monthly training in story reading as well as the other activities to take place that month. They were requested to spend 40 minutes a day on story book reading, but their procedure usually took only 10-20 minutes instead. They read each book only once, asking either yes-no questions

visited regularly to observe the way teachers were reading the stories.

Results

Characteristics of the sample

Among the intervention children, 34.7% were boys and 65.3% girls. Among the control group this proportion was 51.3% boys and 48.7% girls. As seen in Table 1, ages of the children did not differ in the

Table 1

Mean (S.D) and t-values comparing intervention and control preschool students.

Variable	Intervention	Control	t	p-value
Child's age (months)	64.73 (8.34)	66.15 (10.81)	.91	ns
Mother education (year)	4.49 (4.03)	4.55 (4.10)	.09	ns
11 Household assets	7.31 (2.37)	7.13 (2.42)	.46	ns

two groups; at pretest they were 5.39 years and 5.51 years respectively in the intervention and control groups. Neither mothers' education nor family assets in terms of 11 household items differed between groups. Land use and home ownership also did not differ.

Table 2 shows that one-third of the mothers had never gone to school. A little more than a quarter had primary education, while about one third of the mothers had secondary education.

scores were subjected to an analysis of covariance, covarying first the pretest score, the child's age, mother's education and assets. Only the pretest covariate was significant, as expected. The posttest score yielded a significant effect for group, $F(1, 152) = 220.87, p < .0001$, partial $\eta^2 = .60$. The control students had an adjusted posttest mean of 80.00 (SEerror = 4.64) and the intervention students an adjusted mean of 180.12 (SEerror = 4.74), and an effect size $d = 2.0$.

Table 2
Mother education

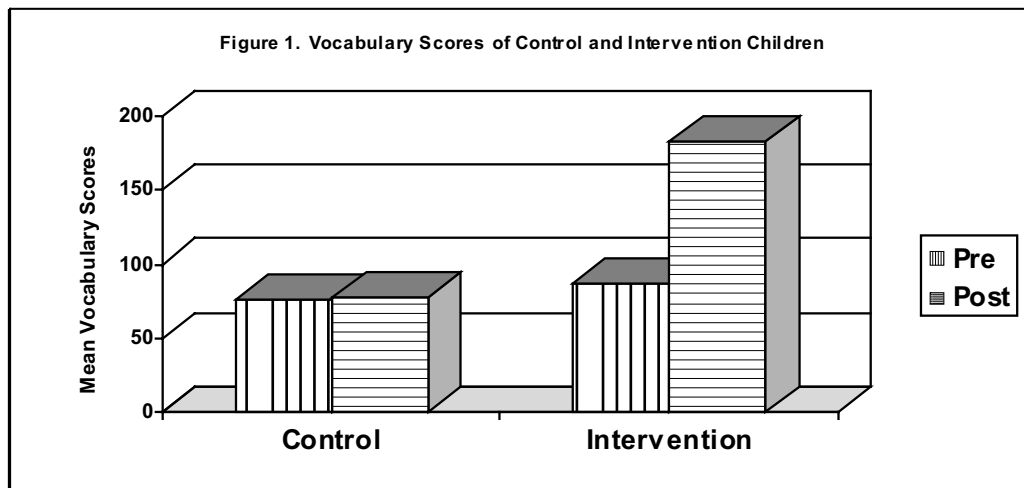
Mother education	Type of School		Total
	Control	Intervention	
No education	27 (34.6%)	25 (33.3%)	52 (34.0%)
Primary	22 (28.2%)	22 (29.3%)	44 (28.8%)
Secondary	26 (33.3%)	25 (33.3%)	51 (33.3%)
Higher Secondary	3 (3.9%)	3 (4.0%)	6 (3.9%)
Total	78 (100.0%)	75 (100.0%)	153 (100.0%)

Vocabulary

The vocabulary test had 170 items that were scored from 0 to 2. The alpha coefficient on pretest scores was .96 and on posttest scores .99. Consequently each child's score was the sum of points across all 170 items. Pretest and posttest scores are presented in Figure 1. The posttest

The improvement as a result of the reading intervention was impressive.

Observations conducted at the dialogic schools indicated that within a week, teachers and children became accustomed to the participatory procedure. Teachers required practice and experience in order to generate open-



ended questions, engage the children, and respond to children's answers in a responsive manner. Children also required encouragement at first because they had been used to only repeating the teacher's phrases. Children in both programs paid full attention, but those in the dialogic reading program were more actively attentive. They answered individually and their answers were therefore unique. Most eventually offered answers and elaborated extensively on their answers; however even the few who remained shy were alert. Teachers encouraged them to elaborate with experiences from their own life, and they did. Control teachers, in contrast, asked questions in a predictable way, usually requiring that children repeat the last phrase or simply answer "Yes". Typically all the children would reply loudly in unison. Their comprehension was thereby not tested. Children did not frequently ask the teacher for clarification so the teacher showed little responsiveness.

Discussion and implications

The hypothesis was that dialogic reading in this brief intervention would result in increases in children's expressive vocabulary. This was strongly confirmed with a large effect size. Children in the intervention group rose from a mean of 26% to 54%, whereas control children did not improve. Scores were intentionally low at the pretest in order to assess the acquisition of new vocabulary. We used a measure of expressive vocabulary as the children were of an age where both expression and comprehension were important. It might be expected that children's vocabularies would continue to improve with a full year program and that their reading skills would benefit in the future.

The intervention was also intentionally brief in order to examine the efficacy of this new technique in Bangladeshi

preschools. Given the preschool teachers' paraprofessional status with most training acquired in a short period of time before the program, they were previously unable to adopt a more responsive and inferential question-and-answer repertoire. The training for dialogic reading was adapted to these conditions by providing examples of questions on the back of books, a training video and coached practice. A similar training procedure was found to be most effective with high-school educated mothers of young American children (Huebner & Meltzoff, 2005). With training and experience, the teachers became considerably more confident in creating their own questions and eliciting children's expressive participation. It should be feasible to extend the program for a full year with the help of challenging story books and enriching vocabulary.

Previous studies have found that children who participate in dialogic reading activities show improvements in vocabulary (e.g., Hargrave & Senechal, 2000; Lonigan & Whitehurst, 1998). Improvements are greater with children whose vocabularies are below the norm for their age, and when parents supplemented preschool reading with home reading. The current study supports previous research in showing the short-term benefits of dialogic reading on expressive vocabulary acquisition. Unlike previous research, the dialogic reading was conducted with a group of 20-25 children. So not all children were engaged in the dialogue at any one time. However, it appeared to be sufficient to result in a significant improvement in vocabulary. The regular group seems to have acquired very little new expressive vocabulary. Although they spent less time on the story, they did spend the remaining time in spontaneous conversation (called "morning news"), repeating rhymes, and learning the

alphabet. The style of story reading, however, did not clarify the meaning of new words for children, and they were unable to derive meaning from the story itself. Rather than explain new words to children, the regular teachers often avoided the new word in preference for using a simpler phrase that they felt children would understand. Furthermore, their questions required passive repetition of book phrases, and so gave children the impression that accurate repetition rather than comprehension mattered.

It is important to translate research to practice. This research proved that the ongoing programs could be improved

significantly with benefits to the children if minimal but systematic efforts were made to materials, training, and supervision. In Bangladesh, the importance of ECD programs has been acknowledged by the government and by non-government organizations. As a result, more resources have been channeled and the program coverage has also been increasing every year. However, there is still a need to improve the quality of the programs in terms of literacy, math and play. Dialogic reading of stories with challenging new vocabulary can become a regular feature of preschools in Bangladesh in order to raise language competencies.

Appendix 1:

List of the books used in the research, produced by ECDRC, BU-IED

Akhter, M. (2006), Kossoper Golpo.
Chakma, S., (2006) Ajob Juto.
Faisal, M. K., (2006) Nouka Vromon.
Hossain, I., (2006), Nijhum Bone Ganer Ashor.
Islam, S., (2006), Doitter Deshe Onima.
Khanam, M. (2006), Shopna O Mithur Sheyal Dekha.
Rashed, M., (2006), Ripa O Picchi Vut.
Shahabuddin, ABM. (2006), Khorgosher Jonmodin.

Appendix 2:

Notes on Dialogic Reading

Dialogic reading is a form of shared storybook reading in which the adult reader engages the child(ren) in a verbal dialogue about a story. Children are actively engaged in expressive language when the teacher asks open-ended "wh" questions and pursues the child's answer with a further extension or question. After reading a piece of text, the teacher asks questions. Some questions may be about the meaning of new words, some may be about the causes and consequences of events.

Following is an example from the book, Kossoper Golpo (The story of a turtle):

Text (page 1)

"Tuni and Rupa lived near a spring. The spring water made a pool where many colourful fish lived. Tuni and Rupa often went to the pool. They loved to watch the fish and throw stones to play with them."

Questions:

Where did Tuni and Rupa live?

What is a spring?

Has anyone ever seen a spring?

What did Tuni and Rupa love?

Text (page 2)

"One day as they reached the pool, they saw something black under the water. As soon as it floated up to the surface, they realized that it was a turtle. They were so excited."

Questions:

What did Tuni and Rupa see at the pool?

How the turtle was look like?

Why did they feel excited?

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