

## **Abstract Title Page**

**Title:** Read alouds enhanced with Tier 2 instruction: Closing the vocabulary and comprehension gap in first grade.

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**Background:** Despite strong interest in comprehension development, few research studies have addressed how to teach young children to think strategically about text and access the meaning of unknown works in print (Beck & McKeown, 2001). Clearly, critical instructional variables that influence first grade comprehension warrant greater attention. For example, the influence of individual differences in children’s oral language skills and vocabulary knowledge on comprehension development is largely underspecified (Biemiller, 2001a). “Meaningful differences” related to children’s language and vocabulary development are evident well before children enter school (Hart & Risley, 1995). Consequently, when considering the importance of language skills and vocabulary knowledge in comprehending spoken language and written print, the need for strong instruction and early interventions in vocabulary development and comprehension is compelling (Biemiller, 2001b).

Researchers suggest that instruction designed to build academic language and vocabulary skills must involve decontextualized language to expand children’s exposure to topics and events beyond their everyday experiences (Heath, 1983; Snow, 1991, 1993). Beck and McKeown (2001) assert that one approach to building decontextualized language and vocabulary is through “read alouds” that challenge young children’s listening comprehension. Currently, we are conducting a four-year research project to test the efficacy of a whole class Read Aloud Curriculum in first grade classrooms. As part of this research we are also evaluating the impact of tier 2 instruction on the comprehension and vocabulary knowledge of students identified with low language and vocabulary skills.

In our early work testing the impact of the whole group curricula, teachers in the Read Aloud Intervention implemented interactive read alouds during whole class read aloud time. The Read Aloud Curriculum consisted of 19-weeks of instruction with thematically paired fiction and nonfiction texts. Read aloud lessons included before, during, and after reading components. Setting a purpose for reading, building vocabulary knowledge, making text-to-text and text-to-life connections, and having students retell stories or information on a regular basis were integrated into read alouds.

Results from the efficacy study of the whole group Read Aloud program illustrated modest effect sizes on both vocabulary ( $d = .80$ ) and narrative retell outcomes ( $d = .36$ ). When examining subgroups of student at risk for language and vocabulary difficulties, at-risk students closed the vocabulary gap with their non-risk peers in the control group, however they did not benefit from the curriculum as much as their non-risk peers in the treatment group. The findings from this study prompted the development and subsequent testing of a small group, tier 2 intervention designed to supplement the whole group curricula. The intervention provided targeted support in vocabulary and background knowledge building for students identified with language and vocabulary deficits. The focus of our proposed presentation is to present the findings from our line of research on the tier 2 intervention.

**Purpose of study:** The purpose of our research was to investigate the impact of tier 2 instruction on the comprehension and vocabulary of first grade students identified with low language and vocabulary skills. Specifically, we conducted a pilot study within the context of federally funded efficacy research to examine whether students participating in interactive read alouds during regular classroom instruction (Read Aloud Curriculum - tier 1) benefited from additional small

group instruction. Small group instruction was used to enhance whole class read alouds with pre-teaching and review activities.

**Setting and Participants:** A total of 18 classrooms from nine Title I schools in the Pacific Northwest participated in the study. All students in each classroom were screened at the start of the study to determine early language and vocabulary risk. In each classroom, the 10 students receiving the lowest scores on the screening battery, and scoring at or below the 50<sup>th</sup> percentile, were matched on their relational vocabulary score and randomly assigned to intervention and comparison conditions. Students in both the intervention (n= 52) and comparison (n= 50) classrooms participated in 8-weeks of the whole class Read Aloud Curriculum. Students in the intervention group received additional small group instruction for 20-minutes, two times per week, during the 8-week implementation of the Read Aloud Curriculum.

**Intervention: Tier 2 Booster Intervention.** The small group intervention was designed to boost or support students with language difficulties, vocabulary and comprehension skills. The booster instructional framework focused on building background knowledge, improving vocabulary, and developing deeper understanding of text. Non-fiction read alouds were a primary focus in the booster curriculum. During small group booster lessons, text-based discourse was used to pre-teach, enhance, and review content. Overall, instructional goals included increasing the amount of student talk, quality of student talk, word knowledge and expressive vocabulary, and content understanding.

The booster curriculum was comprised of four units on science content. Each unit consisted of four 20-minute lessons. Lessons were implemented twice a week over a period of 8 weeks. Intervention materials included non-fiction books on animals written by a highly qualified, local science teacher to specifically fit the needs of the small group intervention. Other materials included scripted lessons, descriptions of activities, vocabulary word cards, picture cards that supported target words, question maps to write down important notes while reading non-fiction text, reminder cards with key questions that helped student focus on important information in text, and classification boards with different animal kingdom categories (i.e., mammals, reptiles, insects, birds, etc.). In short, the curriculum had structured and systematic lesson plans with visual and teaching aids to enhance student learning and understanding about vocabulary words and text.

**Research Design:** A randomized block design was employed to study the impact of small group instruction on students' comprehension and vocabulary skills. The ten lowest students in each classroom who scored below the 50<sup>th</sup> percentile on the Relational Vocabulary subtest of the Test of Oral Language Development – Primary (3<sup>rd</sup> Edition) were matched based on performance on the Relation Vocabulary subtest and randomly assigned to intervention and comparison conditions. If fewer than 10 students scored below the 50<sup>th</sup> percentile in a given classroom, then a fewer number of students were sampled from that classroom to participate in the booster study.

**Data Collection: Strong Narrative Assessment Procedure (SNAP) (Strong, 1998).** Our primary measure of comprehension impact was the SNAP, an oral retell measure administered individually to all students. The SNAP assesses comprehension of narrative texts through story retell. Students listened to a tape-recorded story while following along in a picture book. An

auditory signal (i.e., a beep) indicated when to turn the page and an examiner was present to ensure that students followed along properly. At the end of the story, the examiner removed the book and, using standardized prompts, asked the student to retell the story in their own words. The student's retelling was audio taped for scoring and analysis.

We analyzed the SNAP retells using procedures developed by Morrow (1985). The inclusion of certain story elements and plot episodes were counted and provided an estimate of how closely a student's retell followed the target story. Trained project staff blind to treatment condition scored students' retellings for story elements. Approximately 40% of student protocols were scored by two examiners. Reliability of scores within two points of each other was .80.

*Nonfiction texts.* We adapted SNAP procedures to assess student comprehension of nonfiction text. Students listened to an audiotape of the text being read. At the conclusion of the audio passage, students completed a retell. Students were asked to tell everything they could about the information they just heard. Trained project staff listened to the students' retellings and rated them on a 4-point scale (0-3) in terms of overall quality (Englert, 1991). Approximately 40% of the retellings were scored by two raters. Reliability of ratings within one point of each other was .98.

*Depth of Vocabulary Knowledge.* A researcher-developed measure was used to assess student knowledge of 16 taught and untaught vocabulary words. Words were randomly selected from a pool of 41 taught and untaught words. Taught words were selected from target vocabulary addressed and explicitly taught in the Read Aloud Curriculum's nonfiction lessons. Untaught words were selected from the Read Aloud Curriculum's content and nonfiction texts. Untaught words were not explicitly taught or discussed in lessons. Students were asked to tell the meaning of each word and use each word in context (e.g., use the word in a sentence). Responses were audio taped for analysis and scored using a modified version of Eller's (1988) vocabulary scoring criteria. Each word was given a score for definition (0-2 points) and use (0-2 points). Sixty-four total possible points could be received on the depth of vocabulary measure.

*Test of Oral Language Development-Primary: Third Edition (Newcomer & Hammill, 1997).* The Test of Oral Language Development is an individually-administered measure of language proficiency, assessing skills in the areas of semantics, syntax, and phonology. To assess expressive vocabulary, we administered the Oral Vocabulary subtest to all target students at pretest and posttest. On this subtest, the examiner orally presents words one at a time to students, who tell what each word means. Examiners use standard prompts to help solicit student responses. We scored this measure according to standardized procedures in the manual.

*Analytic Model:* The data for the primary analysis in this study were structured in a nested design. Students were nested within classrooms, and classrooms were nested within schools. Using a randomized block design (blocking on classroom), we randomly assigned students within each classroom into intervention and control conditions. Students in each classroom were matched in pairs, based on their pretest scores on the Relational Vocabulary subtest of the Test of Oral Language Development-Primary (Newcomer & Hammill, 1997). Therefore, each classroom or block included students that either received the Tier 2, booster intervention and students not receiving the intervention in pairs. Because those subjects were nested within

classrooms or blocks, the hierarchical linear modeling provided an appropriate analytic framework to explore the intervention effect (Raudenbush & Bryk, 2002).

**Results: Preliminary Analyses.** Students in the intervention and comparison classrooms were tested on three measures at pretest (prior to the implementation of the intervention) and posttest (after the implementation of the final intervention lesson). Descriptive data on performance is presented in Table 1. Pretest scores were analyzed to evaluate performance comparability between intervention and comparison classrooms prior to the study. There were no significant differences in pretest scores by intervention assignment.

*Impact of Intervention.* The impact of the booster intervention for at-risk first graders on comprehension and vocabulary was analyzed using two-level hierarchical linear models (HLM). Table 2 summarizes the results from the HLM analyses. Intervention effects were significant on two measures: vocabulary knowledge and expository retell. The intervention did not have an impact on the narrative retell measure ( $\gamma_{10} = -.26$ ,  $t = -.24$ ,  $p > .10$ ). For the expository retell, the students who received the booster intervention had, on average, a .89 point higher score than the students in control group ( $\gamma_{10} = .89$ ,  $t = 2.84$ ,  $p < .01$ ). The effect size was moderate ( $d = .57$ ) and the intervention condition explained 7% of between-student variance in expository retell posttest scores. For vocabulary knowledge, the scores of the students in the booster group were, on average, 5.98 points higher than those of the students in the control group ( $\gamma_{10} = 5.98$ ,  $t = 3.42$ ,  $p < .01$ ). The effect size was also moderate ( $d = .66$ ) and the intervention condition explained 9% of between-student variance in vocabulary knowledge posttest scores. These results suggest that the short-duration, Tier 2 booster intervention was quite effective for at risk first grade students on their development of early vocabulary and comprehension skills.

**Conclusions:** Our preliminary results indicate that small group instruction appears to enhance the vocabulary knowledge of students identified with low vocabulary and language skills. Results are particularly noteworthy given that moderate effects were observed with modest levels of instruction. The tier 2 intervention only consisted of 20 minutes of instruction implemented twice each week. Overall, results support adding a small group component to whole class read alouds. Small group instruction enhanced tier 1 content by adding more opportunities to learn and expressively use vocabulary in text-based discourse. Teachers were able to pre-teach, enhance, and review Read Aloud Curriculum vocabulary for at-risk learners

For this study, we wanted to determine the optimal effects of our tier 2 intervention compared to what students typically receive for language support. Despite this purpose, our intervention effects are confounded with time. Our comparison students did not receive additional time or comparable instructional support. Additional research continues to address design limitations. We are currently evaluating the impact of tier 2 instruction in 25 classrooms implementing the Read Aloud Curriculum (tier 1). In current work, both intervention and comparison groups receive variations of tier 2 instruction.

## Appendices A. References

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## Appendix B. Tables and Figures

Table 1: *Descriptive Statistics of Assessment Scores by Group*

Test		N	Mean	S.D.	Minimum	Maximum
<b><i>Pretest</i></b>						
Nonsense word fluency						
	Control	50	31.24	20.34	4	109
	Booster	52	30.08	17.77	0	93
	Total	102	30.65	18.99	0	109
Relational Vocabulary						
	Control	49	4.18	2.58	0	8
	Booster	51	4.45	2.83	0	8
	Total	100	4.32	2.70	0	8
Vocabulary knowledge						
	Control	52	6.47	4.55	0	22
	Booster	54	6.78	5.07	0	18
	Total	106	6.63	4.80	0	22
<b><i>Posttest</i></b>						
Narrative retell						
	Control	52	6.17	5.83	0	24
	Booster	54	5.91	5.59	0	20
	Total	106	6.04	5.68	0	24
Expository retell						
	Control	50	1.84	1.45	0	6
	Booster	51	2.73	1.67	0	6
	Total	101	2.29	1.62	0	6
Vocabulary knowledge						
	Control	52	12.73	7.48	2	32
	Booster	54	18.71	10.26	1	41
	Total	106	15.78	9.46	1	41