

Social Programs That Work Review

Evidence Summary for Tutoring with Lindamood Phonemic Sequencing

HIGHLIGHTS:

- **PROGRAM:** A program for at-risk readers in grades K-2.
- **EVALUATION METHODS:** A well-conducted randomized controlled trial (RCT) with a total sample of 90 kindergarten students in the Lindamood tutoring and control groups.
- **KEY FINDINGS:** Sizable positive impacts on reading ability at the 2.5 year follow-up (i.e., end of 2nd grade).
- **OTHER:** Limitations in the evidence include the fact that this was a small RCT, and the effect on the most important reading measure – comprehension – approached but did not reach statistical significance. A replication RCT would be valuable to hopefully confirm these positive findings and establish whether they generalize to other schools and districts.

I. Evidence rating: **SUGGESTIVE TIER**

The standard for Suggestive Tier is:

Programs that have been evaluated in one or more well-conducted RCTs (or studies that closely approximate random assignment) and found to produce sizable positive effects, but whose evidence is limited by only short-term follow-up, effects that fall short of statistical significance, or other factors. Such evidence suggests the program may be an especially strong candidate for further research, but does not yet provide confidence that the program would produce important effects if implemented in new settings.

II. Description of the Program:

Lindamood Phonemic Sequencing is a curriculum for K-2 students with poor phonological processing (e.g., letter naming, and awareness of the sounds within words). The curriculum provides intense instruction in word-level skills — including building awareness of the sounds within words (“phonemic awareness”) and letter-sound correspondences — to enable students to “decode” individual words. After

the children demonstrate mastery in decoding words, they begin reading text that is readily decodable, followed by oral reading of regular books with tutors focusing on comprehension skills.

In the version of this program that was rigorously evaluated, students were provided one-on-one tutoring using Lindamood Phonemic Sequencing, in four 20-minute sessions per week for 2.5 years beginning in the second semester of kindergarten. Two of the sessions were conducted by a certified reading teacher and two by a teacher's aide who followed the teacher's written instructions. The teachers received 18 hours of training prior to the program, and three hours of in-service training bi-weekly during the program. Their tutoring sessions were periodically videotaped and reviewed by project consultants to identify areas for improvement. The aides were provided less extensive training.

The cost of the Lindamood Phonemic Sequencing manual and initial 18-hour training is \$707 per teacher (2017 dollars). Additional costs include (i) the teachers' time spent tutoring (about one hour per student per week); (ii) the aides' time tutoring (also an hour per student per week); (iii) the bi-weekly in-service training of teachers; and (iv) the training of aides. [Click here for the curriculum's website.](#)

III. Evidence of Effectiveness:

This program was evaluated in one randomized controlled trial with a sample of 180 kindergarten students in 13 public elementary schools scoring in the lowest 12% on phonological processing skills. Students were randomly assigned to (1) the Lindamood Phonemic Sequencing tutoring program described above; (2) one-on-one tutoring using a different curriculum ("Embedded Phonics"); (3) one-on-one tutoring in the activities taught in the students' regular classroom reading programs; or (4) a control group that received no tutoring. Each group consisted of 45 students. Of the three programs, the Lindamood Phonemic Sequencing program had the largest effects versus the control group; its effects are summarized below. The other two programs had smaller effects (results not summarized here).

52% of the students were African American, 47% were white, and 1% were Hispanic.

Effects at the end of 2nd Grade (versus the control group):

- Much lower percentage of students were retained in-grade in kindergarten or 1st grade (9% vs. 41%).
- Many fewer students scored in the bottom 15th percentile for their age in word attack skills (24% vs. 53%); word identification skills (21% vs. 53%); and passage comprehension (36% vs. 56%).
- Many more students scored above average for their age in word attack skills (42% vs. 4%); word identification skills (47% vs. 25%); and passage comprehension (36% vs. 16%).

Note: The program's effects on grade retentions, word attack skills, and word identification skills are statistically significant. Its effect on passage comprehension approach but do not reach statistical significance ($p=0.11$ for the percent scoring in the bottom 15th percentile, $p=0.07$ for the percent scoring above average).

Discussion of Study Quality:

- The study had reasonably low attrition, with outcome data collected for 77% of the original sample at the end of 2nd grade (2.5 years after randomization).
- There were no significant differences in reading skills between the program and control groups prior to the program, nor in demographics.
- The study measured outcomes using an intention-to-treat analysis.
- The study was implemented in a typical public school setting with regular teachers, providing evidence of the program’s real-world effectiveness.
- The study assessed reading outcomes using objective, well-established tests (Woodcock Word Attack, Word Identification, and Passage Comprehension tests, and Gray Oral Reading Test-III).
- Staff gathering outcome data were blind as to treatment condition.
- Study Limitation: Outcomes were measured immediately after the program concluded, at the end of 2nd grade. Longer term follow-up is necessary to determine whether the above impacts were sustained over time.

IV. References:

Torgesen, Joseph, Richard Wagner, Carol Rashotte, Elaine Rose, Patricia Lindamood, Tim Conway, & Cyndi Garvan (1999). “Preventing reading failure in young children with phonological processing disabilities: Group and individual responses to instruction.” *Journal of Educational Psychology*, 91, 579-593. [Click here for a link to this study.](#)