



**Current Efficacy Research for the  
*Lindamood Phoneme Sequencing*<sup>®</sup>  
Program (LiPS)**



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Order number M13602

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## Introduction

The *Lindamood Phoneme Sequencing Program (LiPS) for Reading, Spelling, and Speech* (formerly known as the *Auditory Discrimination in Depth* program) was developed more than 40 years ago by Patricia C. and Charles H. Lindamood. The third edition was revised in 1998 by Patricia C. Lindamood and Phyllis D. Lindamood; the fourth edition was revised in 2011. The program has been used clinically and in classrooms throughout North America, Australia, and other countries.

The LiPS Program is an intensive multisensory program for students in preschool through adulthood who need explicit, direct, and systematic instruction to develop the phonological awareness abilities that will help them learn to read, write, and spell. Not intended as an approach for teaching normally developing readers, the LiPS Program instead was especially designed for use with students who are poor readers or who are considered at risk for reading difficulties.

Using an oral-motor, visual, and auditory feedback system, the LiPS Program develops the student's ability to distinguish phonemes in spoken patterns. Students explore the physical movements involved in producing sounds and learn to hear, see, and feel the physical characteristics of sounds and to notice the contrasts between them. LiPS builds on existing knowledge to introduce new skills and frequently spirals back to review until mastery is reached. Students learn to identify and verify sounds independently; they later produce, hear, and eventually read those sounds.

Once students have been introduced to the consonant and vowel sounds, they learn to “track” sounds within a speech stream. Tracking directly stimulates awareness of the identity, number, and order of phonemes in a syllable. It develops segmentation and blending, as well as the ability to judge addition, deletion, substitution, and shifting of phonemes. Students use colored magnetic squares to represent phonemes. When an error is made, the manual guides teachers to provide corrective feedback using the Socratic method of questioning. The student is questioned, with attention drawn primarily to the articulatory-motor features (e.g., “What sound do you feel right after the Lip Popper when you say /piv/?”).

In the LiPS Program, letters are introduced after the student has a firm understanding of phonology. In teaching sound-symbol associations, the LiPS tasks progress from articulatory movements to sounds to letters. Students who can track phonemes successfully in spoken syllables are then led to discover the connection between this process and decoding and spelling. This occurs in a sequenced fashion that moves from the simple to the complex to the multisyllable level. Remedial work uses both pseudowords (to minimize the effect of memorization) and real words. Overlap to contextual reading occurs, and reading material is included in the form of the *Phonological Awareness and Sequencing (PAS) Stories*, chosen to be on essentially the same level that the student can track. Spelling exceptions and irregularities are introduced in a systematic fashion.

## Research on the Use of the LiPS Program

In the National Reading Panel (NRP; 2000) report, the research studies incorporating the LiPS Program were cited as “well-designed, high-quality research that highlights the effectiveness of direct instruction in phonological awareness and phonics” (pp. 2–36, 2–127). In this section, we will review the research examining LiPS Program effects, and comparisons between LiPS and other methods of teaching reading to students with reading difficulties.

## ***Research Showing Program Effects***

The implementation of the LiPS Program and its effects on students' word-reading abilities have been considered by numerous researchers. Several are highlighted in the following table and described briefly below.

<b>Researchers</b>	<b>Year</b>	<b>N</b>	<b>Students</b>	<b>Method</b>	<b>Results</b>
McIntyre, Protz, & McQuarrie	2008	227	Typically achieving and at risk for reading failure in Grade 1	LiPS Program in the classroom	Gains in PA and sound-letter correspondence
Truch	1994	281	5–55 years old	80 hr of intensive 1:1 LiPS Program instruction	Highly significant gains in PA, sound-letter correspondence, word identification, spelling, decoding in context
Alexander, Anderson, Heilman, Voeller, & Torgesen	1991	10	7 years 7 months–12 years 10 months with severe reading disabilities	LiPS Program in 1-hour sessions, 4 times a week	Significant increase in PA, increase in word attack skills

### **McIntyre, Protz, and McQuarrie (2008)**

McIntyre, Protz, and McQuarrie (2008) investigated the effect of the LiPS Program on the phonological awareness (PA) skills of typically achieving students and students classified as at risk for reading failure between kindergarten and Grade 1. Students demonstrated gains in phonological awareness and sound-letter correspondence in classrooms where teachers used the LiPS Program. Results supported the construct of reading deficit prevention and suggested that the LiPS instruction method has a positive impact on children's phonemic awareness skills in kindergarten and Grade 1. This study demonstrated that primary prevention of reading failure at the classroom level using the LiPS Program appears to be cost-effective and efficient in meeting students' needs.

### **Truch (1994)**

Truch (1994) conducted a longitudinal study in which he investigated how phonological awareness was affected by the LiPS instructional approach. Pretest and posttest data were collected on 281 participants, aged 5 to 55 years, who had received 80 hr of intensive one-on-one instruction following the scope and sequence of the LiPS Program. Results indicated that a treatment effect existed for the group of participants, and highly significant gains were observed on measures of phonological awareness, sound-symbol connections, word identification, spelling, and decoding in context.

### **Alexander, Anderson, Heilman, Voeller, and Torgesen (1991)**

Alexander, Anderson, Heilman, Voeller, and Torgesen (1991) studied a group of 10 students, ranging in age from 7 years 7 months to 12 years 10 months, with severe reading disabilities, who were trained in the LiPS Program in 1-hour sessions, four times a week, in a school setting and a clinic setting. All of the children in the study significantly increased their phonological awareness skills. The children also increased their word attack skills.

## Comparison Studies

A number of research studies have compared the LiPS Program to other reading programs with various programmatic emphases. Several are highlighted in the following table and described briefly on the following pages.

Researchers	Year	N	Students	Compared	Results
Pokorni, Worthington, & Jamison	2004	60	<ul style="list-style-type: none"> <li>• 7–9 years</li> <li>• Language and reading deficits</li> </ul>	LiPS; Earobics; and Fast ForWord; three 1-hour sessions during 20-day summer program	LiPS intervention did significantly better job in improving students' ability to blend phonemes; significant improvement in PA
Torgesen, Wagner, Rashotte, Rose, Lindamood, Conway, & Garvan	1999	33	Kindergarten–second grade	PA and synthetic phonics (LiPS)	Students using PA and synthetic phonics scored higher than those using EP in PA, phonemic decoding, and context-free word reading
		36	Kindergarten–second grade	Embedded phonics (EP)	
		37	Kindergarten–second grade	Regular classroom support	
		32	Kindergarten–second grade	No treatment	
Torgesen, Alexander, Wagner, Rashotte, Voeller, & Conway	2001	26 24	Severe reading disabilities	LiPS and embedded phonics; 1:1 for two 50-minute sessions/ 5 x week for 8 weeks	LiPS resulted in significantly greater growth
Torgesen, Wagner, Rashotte, & Heron	2003	150	Low-achieving first grade	LiPS; Read, Write, & Type (RWT); and regular instruction	LiPS and RWT were effective at preventing reading problems; LiPS had positive effects on alphabets
McGuinness, McGuinness, & McGuinness	1996	42	First grade	3 classes: 1 LiPS with modified whole language, 1 LiPS with Montessori, and 1 modified whole language program	Significantly higher word identification and word attack scores for students receiving LiPS
Kennedy & Backman	1993	10	Severe learning disabilities	Remedial program with LiPS intensive, and remedial program alone	Significantly greater gains in PA and phonetic spelling strategies for students receiving LiPS
Van der Laan	2006	32	At-risk first grade	District curriculum with LiPS and district curriculum without LiPS	LiPS + district curriculum intervention showed significant effect on PA

### **Pokorni et al. (2004)**

Pokorni et al. (2004) conducted a comparison study of the LiPS, Earobics (Cognitive Concepts, Inc., 1998), and Fast ForWord (Scientific Learning Corporation, 1999) programs. The purpose of the study was to determine the effectiveness of three instructional methods that claim to improve phonological awareness, language, and reading-related skills. Sixty students, age 7 to 9 years, with language and reading deficits were randomly assigned to one of the three interventions. Students received three 1-hour daily intervention sessions during a 20-day summer program conducted by a large school district. Study results showed that “the LiPS intervention did a significantly better job than the other two interventions to improve students’ ability to blend phonemes” (Pokorni et al., 2004, p. 155). Analyses within each group noted significant gains in phonological awareness skills made by the students who received LiPS instruction.

### **Torgesen et al. (1999)**

Torgesen et al. (1999) conducted a study wherein students from 13 schools were provided instruction from second semester kindergarten through Grade 2. Eligible students were included according to the following criteria: lowest combined scores on a letter-naming task and a phoneme awareness task, and an estimated Verbal Intelligence score above 75. An extensive battery of pretests was given to the students in the treatment groups. The groups were not significantly different from each other and matched on age, estimated Verbal IQ, letter-name knowledge, phoneme elision, gender, and race. Students were randomly assigned to one of four groups. The four groups were identified as the Phonological Awareness Plus Synthetic Phonics (PASP,  $n = 33$ ) group, who participated in the LiPS intervention program; the Embedded Phonics (EP,  $n = 36$ ) group, who were provided less explicit phonics instruction than the PASP group, along with more work on sight words and on reading and writing text; the Regular Classroom Support (RCS,  $n = 37$ ) group, which consisted of students participating in individual tutoring activities taught in their regular classroom reading groups; and the No Treatment control group (NTC,  $n = 32$ ). The groups were not significantly different from each other and were matched on age, estimated Verbal IQ, letter-name knowledge, phoneme elision, sex, and race. Intervention training was provided in 20-min sessions, four times a week, individually for 2½ years. Two of the four weekly sessions were led by certified teachers, and two were led by paraprofessionals who followed the teachers’ written directions. Results indicated that students in the PASP group scored significantly higher than the EP group in phonological awareness, phonemic decoding, and untimed, context-free word reading. No significant differences were noted between the PASP and EP groups in passage comprehension, although the PASP group obtained slightly higher scores.

### **Torgesen et al. (2001)**

In a follow-up study, Torgesen et al. (2001) compared the LiPS Program ( $n = 26$ ) with the Embedded Phonics program (EP;  $n = 24$ ) in a remedial intervention for students with severe reading disabilities. Students were randomly assigned to the two treatment groups. They were matched on age (8–10 years old), Full Scale IQ, Verbal IQ, word attack, word identification, the *Lindamood Auditory Conceptualization Test* (LAC; Lindamood & Lindamood, 2004), sex, and race. Treatment for both groups was provided on a 1:1 basis for two 50-min sessions, 5 days a week for 8 weeks. Overall, each group received 67.5 hr of instruction. Teachers who provided the instruction in both groups had experience using a direct, synthetic phonics approach to teach children with reading disabilities. In this study, more explicit and systematic phonics instruction was provided to the students in the EP group than in the prevention study described earlier. However, students in the EP group spent considerably more instruc-

tion time (50%) reading text under the guidance of a tutor than did students in the LiPS group (5%). Results indicated that students in both groups made dramatic improvements in their phonemic decoding ability, text reading accuracy, and reading comprehension. Students in the LiPS group demonstrated significantly greater growth in word attack on the *Woodcock Reading Mastery Test-Revised* (WRMT-R; Woodcock, 1987) at immediate posttest, but these differences were not maintained at the 1- and 2-year follow-up periods. In general, students in both groups maintained, or slightly improved, their reading gains during the 2-year follow-up period.

### **Torgesen et al. (2003)**

Torgesen et al. (2003) used a computerized program to provide the comparison group for a study of 150 low-achieving first-grade students in five elementary schools. At two schools, students were randomly assigned to the LiPS Program or to Read, Write, and Type (RWT), a reading software program. At three additional schools, students were randomly assigned to LiPS, RWT, or a regular instruction control group. Based on comparisons between the experimental and control groups from three of the schools, the study suggests that both the LiPS and RWT curricula are effective ways to provide instruction to prevent reading problems in at-risk first-grade children. LiPS was found to have potentially positive effects on alphabets. Overall, the LiPS curriculum seemed slightly stronger, although the differences between the two curricula were not large. Given the complexity of training teachers to deliver the LiPS Program versus the RWT curriculum, and the strength of the reading instruction provided by regular classroom teachers in two of these three schools, this study is likely to provide a conservative estimate of the effectiveness of these interventions.

### **McGuinness et al. (1996)**

McGuinness et al. (1996) adapted the LiPS Program for use in a first-grade classroom setting. The study involved two experimental classes of 15 first-grade students each, and one control group of 12 first-grade students. The teachers integrated the LiPS Program into their regular instruction. One teacher used a modified whole-language approach along with the LiPS Program, a second teacher integrated LiPS into her regular Montessori instructional program, and the control teacher used a modified whole-language program that built on prior phonics instruction. At the end of the school year, students instructed with LiPS had significantly higher scores on measures of word identification and word attack.

### **Kennedy and Backman (1993)**

Kennedy and Backman (1993) studied 10 students with severe learning disabilities who received the LiPS Program on an intensive basis in addition to a comprehensive remedial program. The students were matched with 10 students with severe learning disabilities who received the comprehensive remedial reading program but not the LiPS Program component. Significantly greater gains in phonological awareness and phonetic spelling strategies were noted for the students enrolled in the LiPS Program when beginning- and end-of-year scores were compared.

### **Van der Laan (2006)**

Van der Laan (2006) studied at-risk first-grade students in Michigan and investigated the impact of the LiPS Program on their phonological awareness, reading fluency, and comprehension. The study included 16 students in each of the experimental and control groups. The data indicated that there were statistically significant relationships between the LiPS Program and phonological awareness. Students

in the experimental group also made significant gains in reading fluency and comprehension. The LiPS Program provides systematic instruction that targets phonological awareness using deliberate teaching methods.

## Summary

Here is what researchers in the field of reading have said about the LiPS Program:

- “The LiPS Program aligns with current reading research in its explicit and systematic presentation of phonological awareness and phonics instruction.” — *The National Reading Panel, 2000*
- “The instructional content and design of LiPS and the research base supporting its efficacy are strong.” — *Florida Center for Reading Research, 2006*
- “The LiPS program involves explicit instruction in phonemic awareness, phonemic decoding, and sight word recognition skills. It also includes mastery-oriented progressions through essential skills, extensively scaffolded error-correction routines to establish appropriate word identification strategies, and many opportunities to practice with appropriate materials.” — *Torgesen et al., 2001*
- “The LiPS intervention did a significantly better job to improve students’ phonemic awareness skills and their ability to blend phonemes.” — *Pokorni et al., 2004*
- “Student achievement scores in the areas of phonemic awareness and letter/sound correspondence for all students, and particularly those students considered at risk for reading failure, when teachers employed the LiPS program, made significant gains. The LiPS program is an effective program that has proven to impact beginning reading acquisition.” — *McIntyre et al., 2008*
- “The LiPS treatment group had significantly stronger skills in phonological awareness; phonemic decoding; and untimed, context-free word reading....Children were also stronger on word level reading skills.” — *Torgesen et al., 1999*
- “The LiPS Program intervention showed significant impact on phonemic awareness, fluency, and comprehension.” — *van der Laan, 2006*

For more than 40 years the LiPS Program has successfully addressed the reading difficulties of a wide range of individuals, including students with functional speech–language delay, second language learning, dyslexia, autism, apraxia, pervasive developmental delay, traumatic brain injury, and stroke. Research shows marked reductions in the incidence of reading failure when systematic and explicit instruction is provided.

The LiPS Program aligns with this research in its explicit and systematic presentation of phonological awareness and phonics instruction. The LiPS Program is an oral-motor, visual, and auditory feedback system that enables students of all ages to understand the identity, number, and order of phonemes in syllables and words. The LiPS Program focuses directly on the development of phonemic awareness and its integration with sound–symbol knowledge, which accelerates the student’s grasp of English orthographic principles for reading and spelling. The LiPS Program has been proven to positively affect beginning reading acquisition among students in early intervention, at-risk, remedial, and reading disability programs. The instructional content and design of the LiPS Program and the research base supporting its efficacy are strong.

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