WILSON LITERACY SOLUTIONS

EVIDENCE OF EFFECTIVENESS

Wilson, B. A., & O'Connor, J. (1995). Effectiveness of the Wilson Reading System used in public school training. In C. McIntyre & J. Pickering (Eds.), *Clinical studies of multisensory structured language education for students with dyslexia and related disorders* (pp. 247-254). Salem, OR: International Multisensory Structured Language Education Council.

Results of study: 220 students in grades 3-12 had an average growth of 4.6 grade levels in Word Attack and 1.9 grade levels in Total Reading on the Woodcock Reading Mastery Test™ after 62 lessons.

In McIntyre, C. and Pickering, J. (eds.) 1995. Clinical Studies of Multisensory Structured Language Education. Salem, OR: International Multisensory Structured Language Education Council.

Effectiveness of the Wilson Reading System used in Public School Training

Barbara A. Wilson

Wilson Language Training Center

Janet R. O'Connor

Human Development Resources
Wilson Language Training Center
Millbury, Massachusetts

The aim of this study was to determine whether special education pull-out programs with teachers trained in the multisensory instruction of phonological awareness and English word structure yield significant growth in reading and spelling skills. The present study examined the effectiveness of multisensory structured language teaching in public school settings using the Wilson Reading System. Data from pre and post tests of 220 language learning disabled students in grades 3-12 were analyzed. The results demonstrate significant student gains in word attack, reading comprehension, total reading, and spelling. These results demonstrate the effectiveness of the Wilson Reading System with learning disabled students in public schools.

Two concerns need to be addressed in a school system's approach to Special Education: First, learning disabled students' low reading abilities; and, second, their teachers' lack of knowledge of multisensory structured language teaching. Most children identified as learning disabled lack basic reading skills (Forness and Kavale 1985) and thus have trouble in most subject areas. Their inclusion in regular classroom settings requires specific accommodations. Unfortunately, inclusion does not solve the learning disabled student(s)' primary problem, an inability to read commensurate with their cognitive ability. Placing learning disabled students in total inclusion programs without teaching them to read, does not work. Most learning disabled students have an underlying deficit in phonological processing (Adams 1990; Stahl, Osborn & Lehr 1990; Stanovich 1982). Several studies have show learning disabled students are able to make significant gains in their basic reading and spelling skills when phonological awareness and total word structure are taught directly and systematically (Bradley & Bryant 1991; Felton 1993; Williams 1987). Reading and special education teachers working with LD students need to know the phonological structure of the English language and must be given specialized training to teach this structure in a direct, systematic, multisensory way.

This brings us to our second concern, teacher training. According to Dr. Louisa Cook Moats, "the kind of expertise in language structure that is required of teachers for remediating and preventing reading problems" is lacking (Moats, 1994). Teachers have an insufficient grasp of spoken and written language structure (including phonological awareness and morphology) and do not know how to teach reading disabled students (Moats, 1994). The Wilson Reading System addresses both of these concerns by directly teaching phonological processing and the structure of the English Language to both

learning disabled students and their teachers. Wilson Language Training for teachers also addresses the teachers' lack of expertise in multisensory instruction.

The Wilson Reading System (WRS)

The Wilson Reading System directly teaches phonological awareness and total word structure in 12 steps, which take 1-3 years to complete. Each lesson follows a standard format (see Table 1). The procedures of the lesson plan follow a specified multisensory method of instruction. Although the Wilson Reading System was written originally for "older" students, it can be modified for use with beginning or problem readers of any age.

The Wilson Reading System teaches a specific sequence of skills. At each step, students learn skills to mastery for both reading and spelling before progressing to the next step. Steps 1-2 emphasize phonological awareness. These steps teach letter/sound correspondence for closed syllables, the identification of sound units, phoneme segmentation, and blending. At the end of step 2, up to 6 sounds are blended and sequenced in a syllable. Step 3 introduces multisyllabic work, combining closed syllables. Steps 4-6 teach vowel-consonant-"e": open; and consonant "le" syllables. In Step 6, Anglo-Saxon suffix endings are taught also. Steps 7-12 teach higher level word structure. Words containing sound options are introduced for reading and spelling. "R" controlled and diphthong/vowel digraph syllables are taught, as well as additional work with spelling rules and suffixes.

The Wilson Reading System directly teaches phonological awareness and total word structure using multisensory principles. To date, one study examining its effectiveness has been published. In that study, college students significantly improved in spelling using the WRS program (Banks, Guyer & Guyer 1993). The purpose of the present study is to determine whether use of WRS significantly improves student's basic reading and spelling skills.

Method

Subjects

A total of 220 students were included in the study. Most were from Massachusetts's schools, with a small number from Maine and New Jersey. Ninety-two students were in grades 3 and 4; one hundred twenty-eight students were in grades 5-12. All students had a history of reading and spelling difficulties. Special education assessments identified the students included in the study. These students had a total reading score on the Woodcock Reading Mastery test at least two years below their grade placement. Their I.Q. scores ranged from low to high average. Many also met the criteria (as outlined in DSM III-R) for attention deficit disorder.

The students selected for this study had not shown progress in other reading programs using a small group of 1:1 approach. Thirty-five percent had been retained at least one grade. Most received direct special education services in daily pull-out programs: forty-eight percent were in pull-out programs for up to one-third of the day; twenty-six percent for up to three-fourths of the day; eighteen percent were in special

education classrooms for the entire day; only eight percent were in regular classrooms all day. Most had been in special education programs for several years.

Measures

The Woodcock Reading Mastery Test-Revised (WRMT-R, Forms G and H) or the Woodcock Reading Mastery Test (WRMT, Fors A and B) were used to measure growth in word attack, passage comprehension, and total reading. The Word Attack subtest is a measure of decoding ability using nonsense words. This subtest eliminates the possibility of recognized or memorized words and measures the student's word attack skills accurately. The Passage Comprehension subtest provides a measure of reading comprehension. However, slow and inefficient decoding impacts the comprehension test scores (Perfetti, 1975). The total reading score is based on four subtests: Word Attack, Word Identification, Word Comprehension, and Passage Comprehension.

The Wilson Reading System Test was used to measure spelling growth. This test requires students to spell dictated words. A total of forty phonetically regular words are presented; the examiner ends the test after five consecutive errors. The following forty words are dictated: mix, shed, quill, yam, nets, punk, chop, blind, twist, scrimp, extent, compact, mundane, infiltrate, plenty, regulate, spilled, reflectively, razzle, thistle, oblige, infringement, hatchet, compensation, passionately, harmonizing, hurricane, inspector, displaying, discountable, postponing, canned, transmitting, accidental, synthetically, industrial, obedience, achievement, infatuate, and graciously. During Wilson Reading System instruction, spelling words are not memorized and specific lists are not used; rather, a spelling process is learned. Therefore, the spelling posttest does not reflect memorized words; instead, it measures the student's ability to encode words using the learned spelling process.

Procedure

Participating teachers attended a two-day workshop at the beginning of the school year where they were introduced to the critical multisensory teaching principles of the Wilson Reading System. Also, they learned the procedures used in the standardized lesson plans. After the two-day workshop, each teacher completed pretesting a student with the Woodcock Reading Mastery Test and the Wilson Reading System Test. Upon approval by the supervising trainer, each teacher began instructing their student using an initial lesson demonstrated by a Wilson Language Trainer. Each student then received two or three 1:1 lessons per week throughout the school year. Lessons were observed a minimum of five times during the year by the trainer to verify the accuracy of the lesson plan teaching techniques. Teacher lesson plans, student written works, and student notebooks also were checked. All teachers attended monthly afterschool seminars from September to June. In late May or early June, each student was re-evaluated with the Woodcock Reading Mastery Test and the Wilson Reading System Test. At posttesting, the average number of lessons completed was sixty-two.

Results

At Table 2 indicates, the application of paired t-tests to the pre and post test raw scores revealed significant gains for all the Word Attack and Passage Comprehension

comparisons (Woodcock Reading Mastery Tests) as well as the spelling comparisons (Wilson Reading System Test). Similar tests applied to the Pre and Post Test Grade Level scores revealed significant gains for all the Total Reading comparisons (Woodcock Reading Mastery Tests).

Significant gains in Word Attack were obtained; the average gain was 4.6 grade levels. Students had scored lowest on the word attack subtest at pretesting (see Table 2). Lack of decoding ability significantly influenced their overall reading. The average word attack gain of 4.6 grade levels indicates that the Wilson Reading System greatly improved students' decoding abilities.

Significant gains in Passage Comprehension were obtained; the average gain was 1.6 grade levels. Comprehension was better than decoding at pretesting. Although the emphasis in instruction was primarily on word attack, students still gained more than one and one-half years in comprehension.

Significant gains in the total reading scores resulted from the significant gains in word attack and comprehension. The average gain was 1.9 grade levels in total reading. These gains are striking since these students had made little or no gain in reading with previous intervention methods.

Significant gains in spelling also were obtained; the average gain in raw score was 10. Moreover, errors on the spelling posttest were much closer to the accurate spelling. Students not only increased their spelling accuracy, but showed significant growth in their understanding of basic written word structures as well.

Discussion

Previously, these students had shown little growth in reading and spelling despite years of pull-out services in special education settings. This study indicates that although previous pull-out instruction had not been successful, the Wilson Reading System pull-out instruction was successful. Students' improvements in decoding ability, passage comprehension, total reading, and spelling were both statistically significant and substantial after instruction using the Wilson Reading System. Our results show that students who receive instruction from teachers trained in the multisensory teaching of phonological awareness and word structure develop basic reading and spelling skills. In addition, our results indicate students with reading disabilities can make significant reading and spelling gains in a one-year pull-out program. Moreover, teachers indicated students gained confidence and self-esteem as their basic reading skills improved throughout the year. Many teachers expressed frustration that they had not learned enough about phonological awareness and English word structure in their previous teacher preparation courses.

Schools with full inclusion programs are not addressing the needs of students who can not read. The majority of learning disabled students have a reading disability involving the phonology of language. Our results indicate these students can develop their basic reading and spelling skills if taught systematically by teachers trained in the Wilson Reading System, even after other remedial approaches have failed. Thus, the current trend toward placing special education students in modified regular education settings without specific remedial instruction should be questioned. The placement of these students into regular education settings should be combined with direct multisensory structured language teaching. These students' underlying reading and spelling deficits must be addressed. With adequate teacher training, significant results are possible.

References

Adams, M.J. 1990. *Beginning To Read: Thinking and Learning About Print.* Cambridge, MA: MIT Press.

Alexander, A.W., Anderson, H.G., Heilman, P.C., Voeller, K.K. and Torgesen, J.K. 1991. Phonological Awareness training and remediation of analytical decoding deficits in a group of severe dyslexics. *Annals of Dyslexia* 41: 193-206.

Ball, E.W., and Blackman, B.A. 1988. Phoneme segmentation training. Effect on reading readiness. *Annals of Dyslexia* 38: 208-25.

Blachman, B. 1991. Phonological Awareness: Implications for prereading and early reading instruction. In S. Brady and D. Shankweiler (eds.). *Phonological Processes in Literacy: A Tribute to Isabelle Y. Liberman.* Hillsdale, NJ: Erlbaum Associates.

Bradley, L., and Bryant, P. 1991. Phonological Skills before and after learning to read. In S. Brady and D. Shankweiler (eds.) *Phonological Processes in Literacy: A tribute to Isabelle Y. Liberman.* Hillsdale, NJ: Erlbaum Associates.

Felton, R.H. 1993. Effects of instruction on the decoding skills of children with phonological Processing problems. *Journal of Learning Disabilities* 22:3-13.

Guyer, B., Guyer, K., and Banks, S. 1993. Spelling improvement for college students who are dyslexic. *Annals of Dyslexia* 43:186-193.

Kavale, K.A., and Forness, S.R. 1985. *The Science of Learning Disabilities*. San Diego: College Hill Press.

Liberman, I.Y., Shankweiler, D., and Liberman, A.M. 1989. The alphabetic principle and learning to read. In D. Shankweiler and I.Y. Liberman (eds.). *Phonology and Reading Disability.* Ann Arbor, MI: The University of Michigan Press.

Lynch, E.M. and Jones, S.D. 1989. Process and product: A review of the research on LD children's writing skills. *Learning Disability Quarterly* 12:74-86.

Moats, L.C. 1994. The Missing Foundation in Teacher Education: Knowledge of the Structure of Spoken and Written Language. *Annals of Dyslexia* 44:81-102

Perfetti, C.A. and Hogaboam, T. 1975. The relationship between single word decoding and reading comprehension skill. *Journal of Educational Psychology* 67:461-69.

Stahl, S.A. Osborn, J. & Lehr, F. 1990. Beginning to Read: *Thinking and Learning About Print. A Summary*. Urbana-Champaign: University of Illinois Center for the Study of Reading.

Stanovich, K.E. 1982. Word Recognition and Reading Ability. In M.H. Singer (ed.). *Competent Reader, Disabled Reader: Research and Application.* Hillsdale, NJ: Lawrence Erlbaum Associates.

Williams, J. 1987. Educational treatment for dyslexia at the elementary and secondary levels. In W. Ellis (ed.) *Language and Literacy.* Baltimore, MD: The Orton Dyslexia Society.

Wilson, B. 1988. *Wilson Reading System.* Millbury, MA: Wilson Language Training.

Woodcock, R.W. 1973. *Woodcock Reading Mastery Tests.* Circle Pines, MN: American Guidance Service.

Woodcock, R. 1987. *Woodcock Reading Mastery Test-Revised.* Circle Pines, MN: American Guidance Service.

Table 1

Wilson Lesson Plan
- Use 1:1 or in groups
- Lesson length: 50 minutes to 1 hour
- Number of lessons: two-three per week

Part One – Emphasis: Decoding

1. Sound Cards: This includes a "quick drill" of the phonemes with the teacher showing a grapheme and the student(s) naming the letter(s) and corresponding sound(s). Key words are always used with vowels and as needed with other sounds.
2. Teach/Review Concepts for Reading: Blank cards and letter cards are used to teach phoneme segmentation and blending (initially). Students are taught to segment sounds using a finger tapping procedure. Beyond step 2, syllable and suffix cards are used to teach total word structure. Every lesson involves this manipulation of cards to teach word structure and practice reading.
3. Word Cards: Skills learned in section 2 of the lesson are applied to reading single words on flashcards. Review words are included in the stack of cards presented.
4. Wordlist Reading: Skills are applied to the reading of single words on a controlled wordlist containing only those elements of word structure taught thus far. In 1:1 lessons, the student is charted daily for independent success. In group lessons, students are charted before progressing to the next substep. The list changes with each lesson so that students never memorize the list.
5. Sentence Reading: Word attack skills are applied to reading within sentences. All sentences contain only the element of word structure taught thus far.

Part Two – Emphasis: Encoding

6. Preparation for Written Work/Quick Drill: Letter formation is taught as needed. Every lesson includes a phoneme drill with the teacher saying a sound and the student identifying the corresponding letter(s).
7. Teach/Review Concepts for Spelling: Initially, student spells words with phoneme cards and blank cards. Students apply the finger tapping procedure to segment sounds for spelling. Beyond step 3, students use syllable and suffix cards. Students spell words using the cards to sequence sounds, syllables, and word parts.
8. Written Work: Sounds, single words, and sentence dictations are included. The teacher dictates sounds, words, and sentences that are controlled; they only contain the word structure elements directly taught thus far. The student repeats the dictation prior to writing. Sounds and words are spelled orally before they are written. A formal procedure is followed for independent sentence proofreading.

Part Three – Emphasis: Reading Comprehension

9. Passage Reading: The student silently reads a short passage with controlled vocabulary containing only the studied word elements. The student retells the passage in his/her own words linked to visualization of the passage. The student then reads orally.
10. Listening Comprehension: In this part of the lesson, the teacher reads 'non-controlled' text to the student. The student uses visualization and re-telling to develop comprehension skills at a higher level than current decoding.

Table 2

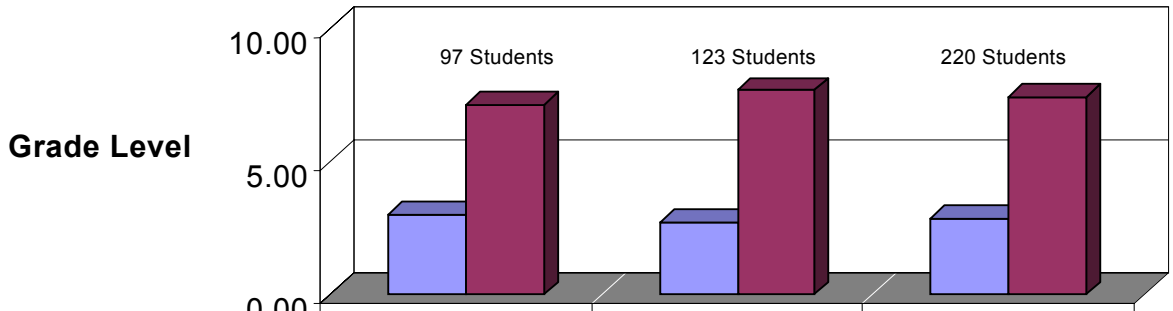
Effect of Wilson Reading System Instruction

Woodcock Reading Mastery	Raw scores Pretest	Raw scores Posttest	Raw scores Avg. Gain	Grade scores Pretest	Grade scores Posttest	Grade scores Avg. Gain	t Scores
Subtest/Form Word Attack A-B Forms: n=97, df=96	19.97	38.18	18.21	3.00	7.14	4.14	*19.50
Word Attack G-H Forms: n=123, df=122	20.19	32.17	11.98	2.73	7.68	4.95	*22.12
Passage Comprehension A-B Forms: n=97, df=96	33.01	45.08	12.07	3.69	5.26	1.57	*12.86
Passage Comprehension G-H Forms: n=123, df=122	30.21	37.59	7.38	3.28	4.87	1.60	*16.20
Passage Comprehension All Forms: n=220, df=219	31.45	40.90	9.45	3.46	5.05	1.59	*18.55
Total Reading A-B Forms: n=97, df=96	N/A	N/A	N/A	2.86	4.25	1.39	*12.00
Total Reading G-H Forms: n=123, df=122	N/A	N/A	N/A	3.80	6.03	2.23	*13.20
Total Reading All Forms: n=220, df=219	N/A	N/A	N/A	3.38	5.24	1.86	*17.88
Wilson Reading System Spelling n=220, df=219	8	18	10	N/A	N/A	N/A	*32.00

* $p < .001$

WORD ATTACK

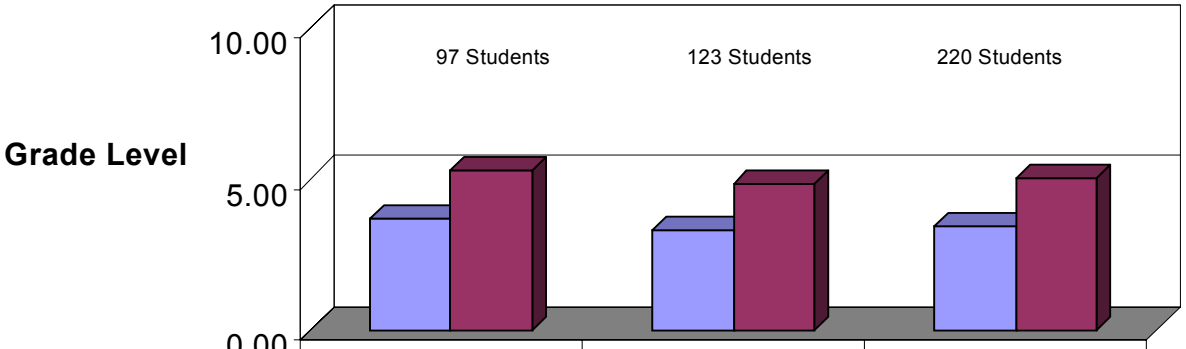
Average Gain = 4.6 Grade Levels



	A-B	G-H	All Forms
PRETEST	3.00	2.73	2.85
POSTTEST	7.14	7.68	7.44

PASSAGE COMPREHENSION

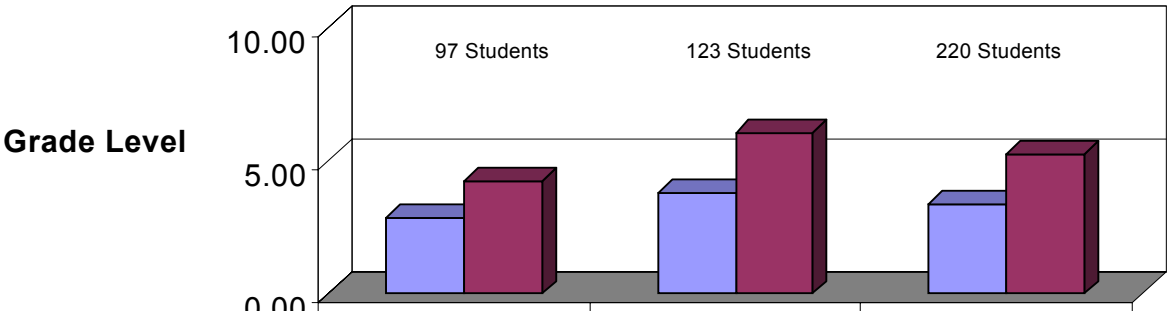
Average Gain = 1.6 Grade Levels



	A-B	G-H	All Forms
PRETEST	3.69	3.28	3.46
POSTTEST	5.26	4.87	5.05

TOTAL READING

Average Gain = 1.9 Grade Levels



	A-B	G-H	All Forms
PRETEST	2.86	3.80	3.38
POSTTEST	4.25	6.03	5.24