

AN OBSERVATION STUDY OF READING INSTRUCTION PROVIDED TO ELEMENTARY STUDENTS WITH LEARNING DISABILITIES IN THE RESOURCE ROOM

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This study documents the amount and quality of reading instruction provided to second- through fifth-grade students with learning disabilities provided resource-room services. Reading instruction provided by 10 special education resource-room teachers was observed. Findings reveal that teachers and students were on task during instructional time that included phonological awareness, word study, comprehension, reading fluency, and vocabulary instruction of average to high average quality. Although class size was small overall, whole-group instructional delivery was most common. Students made statistically significant gains in oral reading fluency but did not increase their standard scores on measures of comprehension or word reading. © 2010 Wiley Periodicals, Inc.

Approximately 6.5 million students with disabilities are served in America's public schools, with 44.4% of them being diagnosed with a learning disability (LD), representing the largest disability category (U.S. Department of Education, 2004). Of this number, almost half are of elementary-school age (age 6–11; U.S. Department of Education, 2004). Of the more than 3 million students nationwide age 6–21 with an LD, 40% receive special education services outside of the general education class between 21% and 60% of the school day, presumably in the resource-room setting (i.e., separate classroom setting where students with disabilities receive individualized instruction).

Teachers in resource rooms are charged with designing and delivering individualized instruction to meet student need, often in the area of reading. Students' academic progress within the resource-room setting has been investigated on several occasions. Authors have repeatedly reported that placement in the resource room has produced little effect on reading achievement. For example, Bentum and Aaron (2003) conducted a single-group, longitudinal study of students who received resource-room instruction over a 6-year period. They reported no growth in word recognition and reading comprehension and a decline in verbal IQ scores. These findings are aligned with previous longitudinal studies that included a non-LD comparison group. Here, researchers (McKinney & Feagans, 1984) reported declining scores on word recognition and reading comprehension with increased time spent in the resource-room setting.

Indeed, students with LD face several difficulties in learning to read (see Swanson & Hoskyn, 1998). First, phonological awareness (PA) deficits result in difficulty analyzing words and their parts and manipulating sounds within words (Felton, 1993; Torgesen et al., 2001). Because students who struggle to acquire PA later experience difficulty learning decoding skills (Felton, 1993), instruction focused on PA development should be part of reading intervention for students with LD. Second, encoding—or representing phonological information in writing from memory (i.e., accurately spelling words)—represents an area of difficulty (Felton, 1993). Third, students with LD face difficulty retrieving phonological information from memory in a facile manner (Wolf, 1984), resulting in problems decoding words quickly, and then in reading connected text with fluency. All of these challenges contribute to difficulty comprehending text.

Luckily, syntheses (e.g., Swanson & Hoskyn, 1998; Swanson, Hoskyn, & Lee, 1999) and consensus reports (e.g., Snow, Burns, & Griffin, 1998) provide converging evidence to inform effective reading instruction for students with reading difficulties/disabilities: (a) students benefit

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from explicit and systematic instruction, (b) foundation skills such as phonemic awareness and phonics/word study are essential elements of instruction, (c) higher processing skills such as fluency, vocabulary, and comprehension are essential from the beginning of reading instruction, and (d) students who have difficulties benefit from smaller group instruction.

Describing Instruction in Resource Rooms

Literature bases that describe the educational needs of students with LD and the most appropriate way to address these needs exist. Another important corpus of studies investigates the presence of these practices in classrooms designed for students with LD. In 2008, Swanson synthesized findings from 21 observation studies published in peer-refereed journals between 1985 and 2008. All studies used a formal observation tool to observe reading instruction, focused on instruction provided to students with LD, and included students in Grades K–12. Several findings were reported. First, time spent in the resource room varied from 11 to 180 minutes. The nature of instruction varied as well, with reports that teachers spent only 44% of the time focused on reading activities (Haynes & Jenkins, 1986) and twice as much time on nonreading activities during allocated reading instruction time (Gelzheiser & Meyers, 1991). Other reports revealed that students spent 26% of their allocated resource-room time engaged in off-task behavior (Leinhardt, Zigmond, & Cooley, 1981). Second, although few studies reported teachers' word study or phonics instruction, the finding was consistent—that little explicit instruction in word study took place. Finally, comprehension instruction was reported to be scant and of low quality, with reports of vocabulary and fluency instruction overwhelmingly missing from the corpus of studies. The most frequently reported grouping structure was whole-class instruction, regardless of the instructional setting.

Over the past decade, efforts have been made to disseminate information about research-based methods for teaching reading to students with LD (see the What Works Clearinghouse for an example of this effort). It is important to assess whether these practices are reflected in our nation's schools. In addition, no observation study of reading instruction for elementary students with LD who were provided services in the resource-room setting has been conducted since 2000; it is time again to investigate and report current practice. The current study extends prior observation studies in several ways:

1. Previous studies neglected to observe vocabulary, fluency, and comprehension instruction. We report instructional trends in each of these areas.
2. Student academic achievement is reported.
3. Rigorous observation research methods are reflected in the current work, including extensive training of observers, strict inter-observer agreement procedures and requirements, and multiple observations.

The following research questions guided our work: (a) What components of effective reading instruction (PA, phonics/word study, fluency, comprehension, vocabulary) do teachers implement during resource-room reading instruction? (b) What grouping strategies are used by teachers during reading instruction in elementary resource rooms? (c) What type of academic progress do students make over time?

METHOD

Teachers and students from four southwestern school districts were included in this study. We used purposive sampling procedures (Kuzel, 1992; Miles & Huberman, 1994) to identify schools that met the following criteria: (a) school met minimum standards on state assessment of reading, (b) school population was aligned with the district's ethnic diversity, (c) a resource-room delivery model was available to students with LD.

Table 1
Student Demographics

	<i>N</i>	<i>%</i>	<i>M</i>	<i>SD</i>
Gender				
Male	22	68.80	na	na
Female	10	31.30	na	na
Age*	na	na	10.50	1.19
Grade	na	na	3.78	1.13
Second	6	18.75	na	na
Third	6	18.75	na	na
Fourth	9	28.13	na	na
Fifth	11	34.38	na	na
Ethnicity				
White	12	37.50	na	na
Black	3	9.38	na	na
Hispanic	13	40.63	na	na
Vietnamese	1	3.13	na	na
Primary disability				
LD	18	56.25	na	na
Other health impairment	11	34.38	na	na
Speech impairment	2	6.25	na	na
Emotional disturbance	1	3.13	na	na

Notes. *M*: mean; na: not applicable.

* As of January 1, 2007.

Teachers

Ten special education teachers who provided reading instruction to students with LD in a resource-room setting participated in this study. Teachers averaged 14 years of teaching experience (range 2–20 years). Two teachers held master's degrees, and nine teachers reported participating in intensive professional development (e.g., Project Read, Wilson, Phonographix) during the past 5 years.

Students

A total of 22 male and 10 female students identified as having special education needs participated in this study. Among this diverse sample of students, average age was 10.5 years and the average grade level was 3.8. See Table 1 for a description of the students' demographic information.

Measures

Instructional Content Emphasis-Revised (ICER-R). The ICE-R (Edmonds & Briggs, 2003) is a multidimensional, taxonomically designed instrument used to record and code teachers' reading instruction. Data yielded include: (a) multidimensional descriptions of reading instruction, (b) time allocated to instructional components, (c) student grouping patterns, (d) level of student engagement, and (e) instructional quality. Type of instruction is coded using two dimensions. Dimension A describes the main instructional category (e.g., word study, comprehension, fluency). Dimension B describes the instructional subcategory. For example, the Word Study (Dimension A) main category contains the following (Dimension B) subcategories: instruction of letter-sound relationships,

providing opportunities for application of letter–sound relationships, irregular word instruction, and other. Dimension C describes grouping practices. Student Engagement codes indicate the level of student on-task behavior during an activity, and is assessed on a 3-point Likert Scale (1 = low, 2 = medium, and 3 = high). A Quality Indicator code is assigned to each instructional event (1 = weak, 2 = low average, 3 = high average, 4 = excellent) based on several scoring indicators (e.g., explicit instruction, teacher modeling).

Woodcock Johnson III (WJ III; Woodcock, McGrew, & Mather, 2001). The Letter-Word Identification (LWI) subtest requires students to read a list of increasingly difficult words. It has a median reliability of .91. The Word Attack (WA) subtest examines a student's ability to apply phonic and structural analysis skills to read nonsense words, and has a median reliability of .87. The Passage Comprehension (PC) subtest evaluates a student's reading comprehension skills through the completion of cloze activities, requiring students to read the entire item to provide the correct missing term, and has a median reliability of .83.

Dynamic Indicators of Basic Early Literacy Skills Oral Reading Fluency (DIBELS ORF; Good & Kaminski, 2002). DIBELS ORF was administered at six points over the course of the semester. The ORF subtest evaluates students' oral reading on 1-minute timed reading samples with the number of words correct per minute (WCPM) for each passage recorded. Alternate form reliability for this measure ranges from .68 to .72, with criterion-related validity ranging from .73 to .81.

Procedures

Student Assessment. Students were tested during 2-week windows in January and April. ORF assessments were administered four additional times over the course of this study. During each ORF assessment wave, the median score of three on-grade-level and three off-grade-level (one grade below assigned grade level) passages were recorded.

Conducting Observations. Teachers were asked to identify reading instructional periods that met the following criteria: (a) at least 50% of the students assigned to the group were second-through fifth-grade students, (b) at least 50% of students were identified as having an LD and (c) the reading instructional period lasted at least 45 minutes. Of the identified instructional periods, one was randomly chosen for observation. Teachers identified a span of three consecutive days when uninterrupted, typical reading instruction for the target group was scheduled. Researchers observed the entire period of reading instruction on each of the 3 days, kept structured field notes, and coded events using the ICE-R.

Observer Training. Observers were provided 6 hours of training in the use of the ICE-R (Edmonds & Briggs, 2003) observation manual, followed by practice using written scenarios and videos. At the end of the initial training phase, observers watched a 30-minute video and were required to code the observation with at least 90% agreement. During the observation's data-collection window, additional training was provided once per week to aid correct coding of ambiguous instructional events observed in classrooms.

Inter-observer Agreement. Inter-observer agreement was established prior to data collection, and again halfway through the observation window. The gold standard method, in which an expert coder established a set of correct observation codes against which trial observations were compared (Gwet, 2001), was used to establish percent agreement (agreements divided by agreements plus disagreements). Observers reached 100% agreement on all sections of the ICE-R prior to observation data collection and met the 90% agreement criterion halfway through the observation window, indicating an excellent level of agreement beyond chance (Landis & Koch, 1977).

RESULTS

Observers recorded 2,178 minutes of reading instruction. Class periods ranged from 41 to 90 minutes, with a mean of 59.5 minutes (standard deviation [SD] = 13.50). Class size ranged from 1 to 7 students, with an average class size of 3.9 students (SD = 1.54).

Reading Instruction Provided

Table 2 provides a summary across all observations of total minutes and proportion of time spent engaged in each type of instruction, average teacher quality, and average student engagement.

PA. Teachers were observed teaching PA for a total of 60 minutes, representing 2.8% of the total observation time. Students were engaged in blending or segmenting phonemes for 20% of PA instructional time (or <1% of the total reading instructional time). The majority of PA activities were conducted by the special education teacher (71.7%), with almost 20% provided via computer and 10% provided by a teacher's assistant. Quality of PA instruction varied widely on a 4-point scale (range 1–4), with an average teacher-quality rating of 2.83. Only 28.3% of observed PA instruction was coded as "excellent" instruction, with another 31.7% coded as "high average." A striking 40% was coded as "low average" or "weak."

Phonics/Word Study. Phonics/word study instruction encompassed 696 minutes, or 31.96% of the total observed reading instruction. Most phonics/word study instruction focused on application of letter/sound knowledge to reading isolated words. The special education teacher led most of the phonics/word study instruction (80.9%), with teaching assistants (8.9%) and computer applications (7.0%) providing instruction as well. Average teacher quality was 3.05, indicating an overall rating of "high average." Indeed, 27.3% of word study was coded as "excellent," with another 46% coded as "high average." A full quarter (25.2%) of word study instruction was deemed "weak," however. Students were highly engaged during a majority of observed word-study instruction (66%). In fact, "low" student engagement was recorded for only 1.4% of word-study instruction observed.

Fluency. Fluency instruction took place for 193 minutes, representing 8.9% of the total observed instructional time. Most fluency instruction was subcoded as repeated reading of text and was provided almost equally by the special education teacher (36.8%) and by audiotape (34.2%). Other means of fluency instruction delivery included partner reading (15.0%) and computer-aided instruction (14%). Fluency events led by the special education teacher received an average instructional quality score of 3.5. Student engagement varied depending on whether fluency instruction was teacher led or delivered by audiotape. With the teacher as instructional leader, students were highly engaged 91.6% of the time. In contrast, when students worked on reading fluency using an audiotape, they were highly engaged only 72.7% of the time.

Comprehension. Comprehension activities totaled 557 minutes, representing 25.6% of total observed instruction. Reading-comprehension monitoring—comprised mostly of teachers asking questions after reading—represented the most commonly observed type of comprehension instruction. A majority of comprehension instruction was provided by the special education teacher (66.3%). During an additional 23.2% of comprehension time, students worked independently on comprehension-related computer activities or worksheets. During the majority of comprehension instruction, teacher quality was rated as either "high average" (23%) or "excellent" (46.5%), with an average teacher-quality rating of 3.08. Students were highly engaged during 54.2% of observed comprehension instruction.

Vocabulary. Vocabulary instruction was observed for a total of 209 minutes, representing 9.6% of the total observed time and was provided solely by the special education teacher. Quality ratings

Table 2
Reading Instruction, Teacher Quality, and Student Engagement

	# Minutes	% of Subcategory*	% of Total Instructional Time**	Average Teacher Quality	Average Student Engagement
PA					
Rhyming	5	8.3%	0.2%	4	3
Blending or segmenting sentences/syllables	24	40.0%	1.1%	3.4	3
Onset/rime	4	6.7%	0.2%	4	3
Blending or segmenting phonemes	12	20.0%	0.6%	2	3
Isolation tasks	15	25.0%	0.7%	1.5	2.5
Other	0	0.0%	0.0%	na	na
Total PA	60	100.0%	2.8%	2.83	2.92
Word study					
Letter/Sound Relationships Application of letter/sound knowledge to reading/writing/spelling	171	24.6%	7.9%	3.23	2.71
Irregular words	481	69.1%	22.1%	2.94	2.64
Word reading	19	2.7%	0.9%	3.5	3
Integration of word study	25	3.6%	1.2%	1	3
Other	0	0.0%	0.0%	na	na
Total word study	0	0.0%	0.0%	na	na
Total word study	696	100.0%	32.0%	3.05	2.70
Fluency					
Letter- or sound-naming fluency	4	2.1%	0.2%	3.67	3
Word fluency	22	11.4%	1.0%	3.4	2.8
Repeated reading of text	151	78.2%	6.9%	3.25	2.92
Other	16	8.3%	0.7%	3.5	3
Total fluency	193	100.0%	8.9%	3.38	2.92
Comprehension					
Prior knowledge/predicting	33	5.9%	1.2%	3.2	3
Reading-comprehension monitoring	369	66.3%	16.9%	2.79	2.52
Listening-comprehension monitoring	7	1.3%	0.3%	4	3
Comprehension-strategy instruction/use	148	26.6%	6.8%	3.45	2.64
Other	0	0.0%	0.0%	na	na
Total comprehension	557	100.0%	25.6%	3.08	2.64
Total vocabulary	209	Na	9.6%	3.18	2.82
Total spelling tests	73	Na	3.4%	2.83	2.83
Total text reading + Writing	241	Na	11.1%	3.15	2.80
Writing	149	Na	6.8%	3.25	2.75

Notes. Average teacher-quality scale: 1 = weak, 2 = low average, 3 = high average, 4 = excellent; average student-engagement scale: 1 = low, 2 = medium, 3 = high; + this text-reading category includes the reading of text with no accompanying comprehension, vocabulary, or fluency activity; * PA subcategories calculated based on 60 minutes of PA time; Word-study subcategories calculated based on 696 minutes of word study time; Fluency subcategories calculated based on 193 minutes of fluency time; Comprehension subcategories calculated based on 557 minutes of comprehension time. ** calculated based on 2,178 minutes of total instructional time.

ranged from 1 to 4, with an average of 3.18, indicating overall “high average” quality instruction. More than half of observed vocabulary instruction was deemed “excellent” in quality. Students were highly engaged during vocabulary instruction, with an average of 2.82 on a 3-point scale.

Grouping

One of the following grouping structures was identified for each instructional event: (a) whole group (entire class taught at once); (b) small group (subset of students taught by teacher); (c) individualized (each student received different instruction); (d) independent (same instruction, but students worked independently); or (e) pairing (students worked in pairs). The most common grouping structure was whole-group instruction (45.8%), followed by individualized (27.3%), independent (19.8%), small group (4.6%), then pairing (2.6%). One should note the small class size found in all resource classrooms observed (range 1–7 students). Therefore, the fact that all students in the class were taught at once (i.e., whole-group instruction) should not necessarily be interpreted as inappropriate.

Academic Progress

Due to the non-experimental nature of the research design and the absence of a control group, one cannot assume that extraneous variables did not contribute as or more strongly to student outcomes than type and amount of instruction did. Therefore, results should be viewed as descriptive. To determine statistically significant differences in scores from pretest to posttest, *t* tests were performed with a Bonferroni adjustment to account for multiple measures (Hammond, 2000). Means, *SD* values, and *t*-test results are presented in Table 3.

No statistically significant differences were detected on measures of LWI, WA, or PC. In other words, students made progress as expected over the time period. Average student scores on LWI and PC were, however, more than 1 *SD* below the normative mean at pretest, indicating below average achievement. At posttest, scores remained at least 1 *SD* below the normative mean. This finding suggests that, although student achievement did improve, it did not do so at a rate that allows a closing of the gap between achievement among students with LD and students without LD.

All DIBELS ORF calculations were conducted using raw scores of WCPM. Posttest differences for on-grade-level ORF scores were not statistically significant ($t = 2.10$, ns). Mean off-grade-level ORF scores increased from pre- to posttest at a statistically significant level ($t = 2.48$, $p > .01$). The mean gain using on-grade-level passages from pre- to posttest was 0.31 words per week. Using off-grade-level passages, the mean gain from pre- to posttest was 0.37 words per week.

Table 3
Pre- to Posttest Differences on Academic Assessments

Measure	Pretest		Posttest		t (31)
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
LWI	81.06	15.59	80.66	14.92	−0.52
WA	90.94	8.44	89.84	8.51	−1.14
PC	79.88	12.62	79.66	13.65	−0.19
ORF – on grade level	52.88	37.10	57.34	37.75	2.10*
ORF – off grade level	54.88	34.32	60.16	38.45	2.48**

Notes. Grade-based standard scores used on LWI, WA, and PC; raw scores used on ORF. * $p > 0.5$; ** $p > .01$.

DISCUSSION

Effective reading interventions for students with LD coupled with efforts to bridge the gap between research and practice justifies the need to investigate the presence of effective reading instruction in resource rooms. This study reports observed components of effective reading instruction, use of grouping for instruction, and student progress over time in 10 resource rooms in the southwest.

Use of Instructional Time

Teachers in this study remained focused on the task of providing reading instruction to students, with less than 10% of the total instructional time engaged in logistical tasks. In addition, students remained on task, with an overall student engagement rating across all observations of 2.76 on a 3-point scale (range = 2.43–3.0). These findings contrast with those from previous observation studies (see Swanson, 2008, for synthesis) of reading instruction for students with LD, where neither teachers nor students remained focused on the task of reading instruction (Haynes & Jenkins, 1986; Leinhardt et al., 1981).

Components of Effective Reading Instruction

PA. Among this sample of students, standard scores on tests of LWI at both pre- and posttest were more than 1 *SD* below the norm, indicating an area of need. Indeed, students with LD commonly struggle with word recognition (Swanson & Hoskyn, 1998). Therefore, one would expect to observe PA activities closely linked to later word reading—specifically blending, segmenting, and manipulating phonemes (Swanson & Hoskyn, 1998). This type of instruction comprised less than 1% of the total reading instruction time, however. Although there is evidence that teachers are engaging students in PA activities, they are not necessarily the ones that are closely related to word reading skills.

Phonics/Word Study. Every teacher in this study provided, at minimum, 15 minutes per class period of phonics/word study instruction over a 3-day span. This contrasts with previous reports of little to no phonics instruction (e.g., Gelzheiser & Meyers, 1991; Meents, 1990; Moody, Vaughn, Hughes, & Fischer, 2000; Schumm, Moody, & Vaughn, 2000; Vaughn, Moody, & Schumm, 1998). Students in this sample struggled, however, with word identification as evidenced by standard scores more than 1 *SD* below the mean on LWI. This result would indicate a need for additional instruction that focuses on applying letter–sound correspondence knowledge to reading words.

Fluency. Students made statistically significant gains in ORF on passages that were one grade level below their assigned grade. Students gained an average of 0.37 words per week on off-grade-level passages, however. According to Fuchs and colleagues (1993), one may expect gains of up to two words per week as a result of high quality fluency instruction. In these classrooms, almost half of all fluency-building activities included repeated reading of passages with a model. Research evidence supports this type of instruction for improving ORF among students with LD (see Chard, Vaughn, & Tyler, 2002, for synthesis). Perhaps a greater proportion of fluency instruction should focus on these research-based practices.

Comprehension. Reading-comprehension monitoring, where teachers ask questions following text reading, was the most common type of comprehension instruction observed in this study. This finding is consistent with previous reports of small amounts of time spent on low quality comprehension instruction that mainly consisted of teachers reading a story aloud followed by teacher questioning (Kethley, 2005; Vaughn et al., 1998). Three teachers provided comprehension-strategy

instruction for 148 minutes, representing 6.8% of the total observed instruction. Comprehension-strategy instruction has never been reported in any of the previous observation studies of reading instruction conducted in resource rooms. Several reviews of comprehension-strategy research that focus on students with LD and struggling readers (e.g., Edmonds et. al., 2009; Gajria, Jitendra, Sood, & Sacks, 2007; Gersten, Fuchs, Williams, & Baker, 2001) suggest that, although decoding and fluency skills contribute to reading comprehension, explicit instruction in reading-comprehension strategies are essential to growth in the area and may be particularly important for older students who are faced with increasingly difficult content area texts.

Vocabulary. Teachers in this study spent 209 minutes (9.6% of total observed time) engaged in vocabulary instruction. Eight teachers provided some kind of vocabulary instruction. This marks an increase compared to previous observation studies where vocabulary instruction was scant at best (Kethley, 2005; Meents, 1990). A recent review of vocabulary instruction for students with LD (Bryant, Goodwin, Bryant, & Higgins, 2003) reminds us that a variety of techniques that include multiple exposures to words may be necessary for increasing vocabulary knowledge. In addition, instruction focused on identifying semantic relationships to other concepts and linkages to prior knowledge are shown to produce vocabulary gains among students with LD. Several of the teachers in this study engaged students in such activities.

Trends in Student Achievement

Statistically significant differences between pre- and posttest on tests of on-grade-level ORF, word reading, or comprehension were not detected. Students made statistically significant gains, however, on ORF passages that were one grade level below their assigned grade. Indeed, care should be taken in interpreting this finding. Similar standard scores at pre- and posttest indicate that students made gains as expected over the 13-week period. There is an expectation that, within the resource room, instruction is closely matched with need. Such individualized instruction should produce a greater likelihood that students would not only make progress as expected, but would make accelerated progress. Why, then, do students with LD assigned to the resource room for reading instruction continue to exhibit no acceleration in reading gains when increases have been noted in the amount of phonics/word study and fluency instruction that is provided by teachers who spend 80%–90% of class time actively teaching reading?

Foremost, we should consider whether instruction was aligned with student need. One way to identify student need is to consider students' pretest scores. For example, on tests of LWI and PC, the average standard scores were 81.06 and 79.88, respectively. Both scores are more than 1 *SD* below the normative mean, indicating an educational need in word reading and comprehension. Likewise, raw scores of 52.88 (on-grade-level) and 54.88 (off-grade level) on ORF passages are aligned with the ability of an average first grader (see Hasbrouck & Tindal, 2006, for normative data), again indicating educational need. The question now becomes "To what extent did instruction address passage comprehension, word reading, and ORF?"

Instruction and Need In Comprehension. With the greatest need evident in reading comprehension, one would expect a substantial portion of instruction dedicated to high quality comprehension instruction. Although increases in the amount of comprehension instruction were noted earlier in text, it still only comprised 25.6% of the total observation time. In addition, there was still an overwhelming preponderance of low level, question and answer, comprehension monitoring. In sum, students in the upper elementary grades may need more comprehension instruction that is focused primarily on developing a set of comprehension strategies.

Instruction And Need In Word Reading. Students also demonstrated deficiencies in word reading as evidenced by the average LWI pretest score. The LWI assessment requires students to apply phonics/word-study knowledge to reading words. Several types of instruction contribute to word reading, including PA and phonics/word study. LWI standard scores across the 10 classrooms ranged from 57 to 93.17, with five class averages falling below a standard score of 85. In three of these five classes, students received no PA instruction, with students in the other two classes receiving between 10 and 17 minutes of PA instruction over a 3-day period. Interestingly, three of these teachers were observed spending the greatest amount of time teaching phonics/word-study skills. In this case, it seems that neglecting PA instruction and focusing solely on phonics/word study may be misaligned with student need. It is possible that these lowest achievers in word-reading skills require focused instruction in higher-level PA skills (e.g., segmenting and blending phonemes) that are closely tied to explicit instruction in applying PA skills to connect with word reading. Although most studies of PA instruction have taken place with early-elementary-school students, evidence exists that students with LD continue to benefit from PA instruction through at least middle school (e.g., Bhat, Griffin, & Sindelar, 2003).

Instruction and Need In ORF. Instruction based on essential elements of reading is more evenly distributed than it was previously reported (Swanson, 2008), and increases in key elements of literacy are evident. A greater number of students made gains on the WA assessment ($n = 24$), which is reflective of phonics/word-study skills, than the number of students who read more fluently than an average end-of-year first grader ($n = 17$; on off-grade-level ORF passages; Hasbrouck & Tindal, 2006). From this we may surmise that although students are receiving appropriate instruction in phonics/word-study skills, they may not be receiving enough experience applying these skills to reading connected text. In other words, whereas WA skills continually developed over time, too many students continued to read at or below the first-grade level at the end of the school year. Indeed, although phonics/word-study instruction was provided to all students, there was little instruction in applying phonics/word-study skills to reading connected text. Focus on applying phonics/word-study skills to reading connected text may produce more robust gains in ORF among students with LD.

Limitations

This study included a small sample of teachers and their students with LD, and was conducted over a short period of time precluding extensive generalization of findings. It is unlikely, however, that these findings are unique. Although they document that teachers' practices were better aligned with research than were those in previous observation studies of elementary students with LD (see Swanson, 2008), it is not divergent enough to indicate that these classrooms are outliers.

There are a number of potential threats to reliability and validity of data collected through observation. These threats include observer effects caused by subject and observer characteristics and conspicuous observation. Establishing a friendly rapport between observers and teachers and allowing the teacher to prepare students for a visitor lessened observer effects. In addition, we conducted three observations to allow for habituation to the observation condition. A greater number of observations, however, would not only provide additional data, but potentially would have lessened observer effects further.

A final limitation comes with the constraints that a small sample size places on the types of analyses possible and the ability to detect meaningful results. Future observation studies should be designed to include enough teacher and student participants to analyze data using multilevel models that would allow researchers to identify teacher-level instruction that may predict student-level outcomes.

Implications for Future Research

As the field of education continues to work toward bridging the gap between research and practice, it will be necessary to continue recording to what extent these practices are implemented by special education teachers in public schools. One barrier to completing large-scale observation studies is the cost of such efforts in both time and funding. An alternative to in-person observations is the use of audio-recordings of teachers' instruction that would reduce subject reactivity caused by the presence of an outside observer and reduce researcher time requirements (requiring only transfer of recorders and coding time). In addition, to bolster investigation of whether instruction is suited to student need, future observation studies might include (a) a composite score of multiple indicators of academic need or (b) close review of Individualized Education Programs to determine individual students' needs.

Implications for Practice

Although it is evident that research-based practices are more frequently observed in resource rooms now than a decade ago, there is still progress to be made. For example, phonics and word-study instruction must move beyond letter-sound correspondence and word-reading instruction to the application of these skills in reading connected text. In addition, comprehension instruction must move beyond teachers asking students questions to ongoing, explicit instruction of cooperative strategies. As teachers seek out and school districts plan for professional development, findings from this study may be used to reflect on practices in classrooms and may serve to guide the types of training to pursue.

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