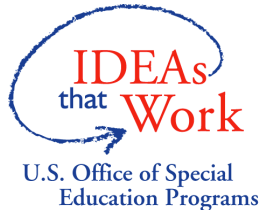




# ***Responsiveness-to-Intervention Symposium***

December 4-5, 2003 • Kansas City, Missouri

The National Research Center on Learning Disabilities, a collaborative project of staff at Vanderbilt University and the University of Kansas, sponsored this two-day symposium focusing on responsiveness-to-intervention (RTI) issues.



The symposium was made possible by the support of the U.S. Department of Education Office of Special Education Programs. Renee Bradley, Project Officer. Opinions expressed herein are those of the authors and do not necessarily represent the position of the U.S. Department of Education.

## **Formulating Secondary Level Reading Interventions**

Debra M. Kamps and Charles R. Greenwood  
Center for Early Intervention in Reading and Behavior  
Juniper Gardens Children's Project  
University of Kansas

When citing materials presented during the symposium, please use the following: "Kamps, D. M. and Greenwood, C. R. (2003, December). *Formulating Secondary Level Reading Interventions*. Paper presented at the National Research Center on Learning Disabilities Responsiveness-to-Intervention Symposium, Kansas City, MO."

## Abstract

Recent advances concerning emerging/beginning reading skills, positive behavioral support, and 3-tiered school-wide prevention models (i.e., primary, secondary, and tertiary levels) combined with federal mandates (i.e., IDEA and No Child Left Behind) have stimulated interest in providing early and intensive instructional intervention services to children at risk for reading and behavior problems. Making this possible are new measures for identifying young students as early as kindergarten who are not acquiring early basic literacy skills. However, questions regarding exactly how to formulate, deliver, sustain, and manage secondary-level interventions remain to be addressed. This paper describes first-year, 1st grade findings for students participating in secondary-level interventions (i.e., small group reading instruction) in a randomized trial of the efficacy of secondary and tertiary reading and behavior interventions underway at the Center for Early Intervention in Reading and Behavior, University of Kansas. The formulation of the experimental secondary-level intervention was guided by evidence supporting the efficacy of (a) small groups of 3-6 participating students and low student teacher ratio combined with (b) explicit, phonics-based instruction. Selected curricula were Reading Mastery, Proactive Reading, Programmed Reading, and Read Well, use of which varied by choice across experimental group schools. Positive Behavioral Support (PBS) was an additional intervention context in experimental schools. Control schools and first grade teachers did not employ the 3-tiered model nor early screening nor PBS; and most students were taught using conventional whole-group instruction,

little/no individualization, and curricula with weak scientific evidence. Initial results indicate significantly larger growth for experimental secondary-level at risk students compared to controls. Experimental group first graders not showing growth were those identified with disabilities, behavioral risks, and English Language Learners. Implications are discussed.

Kamps, D. M. and Greenwood, C. R. (2003, December). *Formulating Secondary Level Reading Interventions*. Paper presented at the National Research Center on Learning Disabilities Responsiveness-to-Intervention Symposium, Kansas City, MO.

# Formulating Secondary Level Reading Interventions

## *Introduction*

Recent advances in research and practice concerning emerging/beginning reading skills and 3-tiered school-wide intervention models (i.e., primary, secondary, and tertiary prevention levels) combined with federal policy mandates (i.e., IDEA and No Child Left Behind) have stimulated interest in providing early and intensive intervention services to children at risk for reading and behavior problems as early as kindergarten. Making this possible are new measures for identifying young students not acquiring early basic literacy skills. However, questions regarding exactly how to actually formulate, deliver, sustain, and manage secondary-level interventions remain to be addressed, as do issues of social validation, school resources, and cost. What follows is a discussion of the prevention approach used to formulate secondary- and tertiary-interventions used by the *Kansas Center for Early Intervention in Reading and Behavior*, initial evidence of effectiveness, and implications for research and practice. Questions guiding formulation and implementation of the secondary interventions used in this project include:

1. What evidence-based practices/strategies shaped the planning and delivery of secondary reading interventions in local elementary schools?
2. How large is the school population of students at risk and qualifying for secondary interventions?
3. What training, professional development, and support is needed to

implement, improve, and sustain secondary intervention in local schools, and what is the initial impact on reading instruction?

4. What is the initial efficacy of secondary intervention for at risk 1<sup>st</sup> graders in experimental schools over a 3-5 month period?

## ***What Evidence-based Practices Shaped the Planning and Delivery of Secondary Intervention?***

The Kansas Center is based on a prevention model to address student risks as early as kindergarten and first grade. Overall the approach combines: early screening for reading and behavior risk within a 3-tiered school-wide intervention model incorporating implementation of effective reading practices.

***Screening for early reading risk.*** The program uses two categories of instruments for early screening: (a) ***emerging/beginning literacy:*** Dynamic Indicators of Basic Early Literacy Skills - DIBELS (Good, 1998) and (b) ***behavioral problems:*** Systematic Screening for Behavior Disorders - SSBD (Walker & Severson, 1992) and the Early Screening Project (Walker, Severson, & Feil, 1995). However, for purposes of this report, our focus is on reading problems. The DIBELS (Good, Simmons, & Smith, 1998; Kaminski & Good, 1996) is designed to measure performance on early literacy skills before children begin to read. DIBELS serves two functions, (a) to identify children who are not acquiring pre-reading skills

(i.e., letter naming, initial sounds fluency, blending sounds in nonsense words), and (b) to monitor progress due to reading interventions/curriculum. Good and colleagues have used the DIBELS instrument with over 30,000 children in primary grades and have used the data to propose “benchmarks” for student performance across skills to indicate a satisfactory level of progress. Once students are screened, teachers can then determine which students are in need of differential instruction to assist the students in “catching up” to a level of on track performance.

***Three-tiered intervention model.*** In addition to psychometrically sound instruments for screening students for reading risks, schools need a model for decision making and intervention management. The model used by the Center and required by the funding agency, the Office of Special Education Programs, is a 3-tiered model of intervention. In a recent review of early literacy research Al Otaiba and Fuchs (2002) summarized this model designed to intensify instruction to meet the needs of students with increasing academic needs (McMaster, Fuchs, Fuchs, & Compton, in press; O’Connor, 2000; Coyne, Kame’enui, & Simmons, 2001). In primary intervention, the most effective instructional programs are implemented by general educators with the expectation that this will “accelerate the learning of most children” (p. 313), i.e., reducing the number of children with behavioral and learning problems. In secondary intervention (e.g., strategic small group instruction in deficit areas) is implemented for students unresponsive to the primary level instruction. In tertiary, intensive intervention is implemented; for example, pull out instruction with multiple

practice opportunities, systematic feedback and progress monitoring.

For example, Kame’enui, Simmons, Good, and Chard (2002) describe a 3-tiered model (Project CIRCUITS) addressing prevention of reading problems. The authors defined prevention as an action to prevent or stop something from happening, and also to reduce the impact of a problem that is already identified. They described primary prevention (first circuit) as a systems level effort to effectively reform a school’s efforts to prevent reading difficulties, which should meet the needs of 80% of the population. Secondary prevention (second circuit) introduced strategies and procedures to supplement and enhance the primary prevention and typically accommodates 15% of the K-3 students not benefiting from primary prevention. Tertiary prevention “represents reading instruction that is specifically designed and customized for students with marked difficulties in reading or reading disabilities, and who have not responded to primary and secondary prevention efforts” (p. 4). Tertiary intervention is reserved for approximately 5% of students. The success of any such 3-tiered model like this clearly depends on the use of sensitive early measurement strategies like DIBELS to provide short-term, sensitive data on rate of growth that can be used for making instructional intervention decisions relevant to the 3 tiers of instructional intensity. This 3-tiered model is compelling because typical general and special education services in elementary school settings often lack a cohesive process for ensuring early access to the most successful reading interventions for all children in K-3. In many cases, at risk students receive no early services for reading concerns until referred for special education evalua-

tion that typically occur later than second grade.

***Effective early reading instruction.*** Effective early reading instruction incorporates use of the following evidence-based skills, known to promote successful beginning literacy: (a) awareness of and ability to manipulate phonemes in *segmenting and blending strategies* (Ehri & Soffer, 1999; Foorman et al., 1998); (b) awareness and understanding of *letter-sound correspondence* (Abbott, Walton, & Greenwood, 2001; Byrne & Fielding-Barnsley, 1989; Foorman et al., 1998); (c) the ability to translate the speech stream sound structures of oral language (*phonological processing*) into written language (Abbott, Walton, & Greenwood, 2001; Adams, 1990; Felton & Pepper, 1995); and (d) *fluency in decoding words and understanding word meaning* (Adams, 1990; Sawyer, 1992). Children also need many opportunities to apply these skills in reading situations (Chard & Kameenui, 2000; Ehri, 1991; Juel, 1991). Also critical is *quality teaching* (Abbott, Walton, Tapia, & Greenwood, 1999; Greenwood, Terry, Arreaga-Mayer, & Finney, 1992; Torgesen et al., 2001).

We know that students who require tertiary level intervention to make progress learning to read commonly exhibit phonological deficits and that when these highest risk students are provided early, intensive effective instructional interventions, up to 95% can reach average performance levels. The literature indicates that instructional designs for early intervention based on explicit instructional strategies, including cognitive, direct instruction, and behavioral strategies, using multiple exemplars and repeated practice lead to increasingly powerful student outcomes (Engelmann, 1997; Ger-

sten, Carnine, & Woodward, 1987; O'Connor, Notari-Syverson, & Vadasy, 1996). Thus, the formulation of the experimental secondary-level intervention with the Kansas Center was guided by this evidence and included the use of (a) small instructional groups of 3-6 participating students and low student teacher ratio, combined with (b) explicit, phonemic and phonics-based instruction. Selected curricula were Reading Mastery, Proactive Reading, Programmed Reading, and Read Well, use of which varied by choice across experimental group schools in the Kansas Center. An additional context of intervention (and only minimally discussed in this paper) was use of positive behavioral support (PBS) in the 3-tiered model.

### ***How Large is the School Population of Students at Risk Qualifying for Secondary Interventions?***

#### ***Schools, Settings, Teachers, and Students.***

Overall, the study underway at the Kansas Center is a randomized trial of the longitudinal effects of the early reading and behavior prevention model employed in urban schools in the Midwestern United States, 8 experimental and 5 control schools. Schools agreed to random assignment wherein they were selected to either use or not use the model. This paper reports some initial findings from the population of first graders in 4 experimental and 4 control schools (340 students; 176 experimental and 164 control group first grade students), these schools representing the highest risk schools in the study. The 340 represent students for whom

parental permission was obtained including 90% of all first grade students in the experimental schools, versus 74% in the control schools. Table 1 presents demographic information for the schools, indicating mod-

erate to high risk levels within and across schools (e.g., low SES, large numbers of English language learners (ELL), and cultural diversity).

**Table 1**  
*School Demographics*

<i>Schools</i>	<i>Total Enrollment (K-3)</i>	<i>% Minority Status</i>	<i>% Free &amp; Reduced Lunch</i>	<i>% Students with IEPs</i>	<i>% English Language Learners</i>
<i>Experimental</i>					
School 1	347 (177)	87%	87%	8%	25%
School 2	262 (210)	95%	90%	7%	49%
School 3	312 (159)	65%	78%	9%	0%
School 5	327 (217)	18%	20%	13%	1%
<i>Control</i>					
School 8	319 (181)	91%	84%	14%	13%
School 9	508 (254)	85%	97%	10%	37%

Kamps, D. M. and Greenwood, C. R. (2003, December). *Formulating Secondary Level Reading Interventions*. Paper presented at the National Research Center on Learning Disabilities Responsiveness-to-Intervention Symposium, Kansas City, MO.

School 10	481 (240)	23%	53%	19%	0%
School 11	369 (216)	27%	21%	14%	4%

A striking finding was the high percentage of students in the participating schools showing reading risk in the beginning of their first grade year. Based on the fall DIBELS score for nonsense word fluency (a score less than 25 indicates risk), results indicated that 61%, 32%, 74%, and 46% respectively, in the experimental schools, and 65%, 82%, 62%, and 46% in the control schools (see Table 2) were at risk. Similarly high risk levels were noted based on students oral reading rates from the

winter DIBELS assessment (see Table 2). The study included 83 students (68 students at risk for reading, 15 at risk for reading and behavior) in the experimental schools and 93 non-risk, typically developing students according to DIBELS benchmark scores. In the control schools, 76 were at risk (69 for reading and 7 for both reading and behavior), and 75 were non-risk peers. Additional students ( $n = 6$  versus 7, respectively in experimental versus control schools) were at risk for behavior problems.

**Table 2**

*Percent of Students Showing Reading Risk Based on DIBELS*

<i>Experimental Schools</i>	<i>Risk Status DIBELS *</i>	<i>District Determined Reading Curricula</i>
School 1	61% nonsense 78% oral reading	Open Court
School 2	32% nonsense 39% oral reading	Reading Mastery
School 3	74% nonsense 82% oral reading	Spotlight on Literacy – McMillan
School 5	46% nonsense 39% oral reading	Open Court

Kamps, D. M. and Greenwood, C. R. (2003, December). *Formulating Secondary Level Reading Interventions*. Paper presented at the National Research Center on Learning Disabilities Responsiveness-to-Intervention Symposium, Kansas City, MO.

<i>Control Schools</i>	<i>Risk Status DIBELS *</i>	<i>District Determined Reading Curricula</i>
School 8	65% nonsense 66% oral reading	Balanced Literacy
School 9	82% nonsense 70% oral reading	Balanced Literacy
School 10	62% nonsense 64% oral reading	Guided Reading
School 11	46% nonsense 56% oral reading	Open Court

\* DIBELS fall nonsense word fluency scores < 25 indicates risk; winter oral reading fluency < 20 indicates risk

What Training, Professional Development, and Support is Needed to Implement, Improve, and Sustain Secondary Intervention in Local Schools, and What was the Initial Impact Across Schools?

The field knows that facilitating change in teacher's instructional practice is incredibly difficult. It is widely recognized that the one-shot workshop has failed to reliably lead to implementation and change in practice and that more frequent and intensive professional development experiences are necessary. For example, Abbott, Walton, Tapia, and Greenwood (1999) reported such a model that included: (1) partnership (with outcome indicators including district approval, agreements and a common mission), (2) collaboration (with indicators of a list of agreed upon concerns, initiation of efforts to change practice with ongoing monitoring), (3) consultation (with indicators being re-

search staff time spent in classrooms interacting with teachers and students, shared data-based decision making), and (4) in-service training (with indicators including workshops in effective practices and methods of inquiry shown capable of guiding decisions, planning, etc.) for promoting change in instructional practice and closing the gap between research and practice. The Kansas Center is using a similar approach to promoting change. Some of the critical features and outcome indicators are: Adoption of the 3-tiered model, the school principal guides the implementation process, the 3-tiered model encompasses a school-wide systems approach involving the entire faculty, collaboration around data collection and decision making, and on-going consultation.

**Professional development.** First year efforts concentrated on training and professional development of building faculty related to

Kamps, D. M. and Greenwood, C. R. (2003, December). *Formulating Secondary Level Reading Interventions*. Paper presented at the National Research Center on Learning Disabilities Responsiveness-to-Intervention Symposium, Kansas City, MO.

reading (and behavioral) intervention and DIBELS assessments and decision making. These efforts included a 5-day Summer Institute with 3 days devoted to reading intervention, followed-up by school-based workshops on specific reading curricula, and ongoing consultation and feedback related to fidelity of implementation. Embedded in the training and consultation was the incorporation of procedures/assessments to implement the 3-tiered model to drive the intervention implementation. On-site support by research staff included DIBELS assessment, interpretation of student data for student screening and intervention decision making, and assistance with scheduling of secondary intervention, small reading group sessions. Ongoing monitoring of the intervention fidelity included procedural checks and direct observation of reading instruction for a sample of students in the experimental schools. Procedural checklist data collected in the winter and spring indicated variance from highest fidelity but steady improvements in the conduct of small group reading intervention procedures (discussed below) with implementation levels reaching averages of 85% to 95% across experimental schools by the end of the 1<sup>st</sup> year.

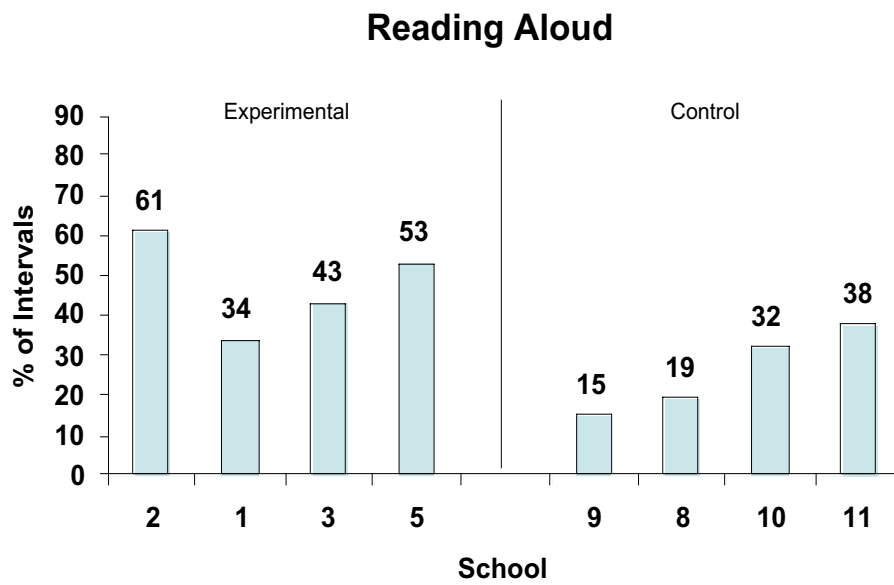
***Instructional change impact.*** A notable change observed across experimental schools was implementation of secondary-level, small-group reading interventions evidenced by direct observation measures, the *Multi Option Observation System for Experimental Studies - MOOSES* (Wehby et al., 1995), a computerized classroom observation system. Observations were made of a randomly selected group of 48 first and second grade students in the experimental schools and another 48 in the control schools. Results indicated that the percent-

age of time students experienced secondary, small group instruction in the experimental groups averaged 35%, 21%, 31%, and 42%, compared to only 6%, 5%, 20%, and 35% of the time in the control schools. These differences were a direct result of model implementation in the experimental schools. An unanticipated additional finding was increased total time devoted to reading instruction across schools, including primary, secondary and tertiary interventions. Results based on teacher reports indicated the mean durations devoted to reading instruction over two day's observation for experimental schools were 210, 203, 177, and 167 minutes, respectively, compared to 162, 151, 341, and 126 for control schools.

***Impact of the intervention on teacher behavior and student responding.*** Observations using the MOOSES also revealed critical differences between experimental and control group students' opportunities to respond during reading instruction in the experimental schools (including the small group interventions), compared to the control group sampled over two entire school days. For example, differences were observed in the percentage of time that students read aloud favoring the experimental group (see Figure 1). Reading silently also occurred more frequently in experimental schools (81% of intervals) compared to control schools (66%). Additionally, students were observed to be much more likely to comply with teachers' instructional demands with mean compliance frequencies across experimental schools of 534, 251, 134, and 463, compared to only 51, 67, 214, and 123 for control schools (see Figure 2). These data reflected differences in both the general class (primary) instruction and small group (secondary) instruction. Much higher

levels of teacher praise were also observed in the experimental schools, a finding directly related to the smaller teacher-student ratios in the small groups, and indirectly related to school-wide changes associated with

ongoing PBS (see Figure 3). Teacher reprimands of students were generally infrequent but slightly higher in the control schools, ranging from 4 to 12.



*Figure 1.* Percent of time engaged in reading aloud across experimental and control schools.

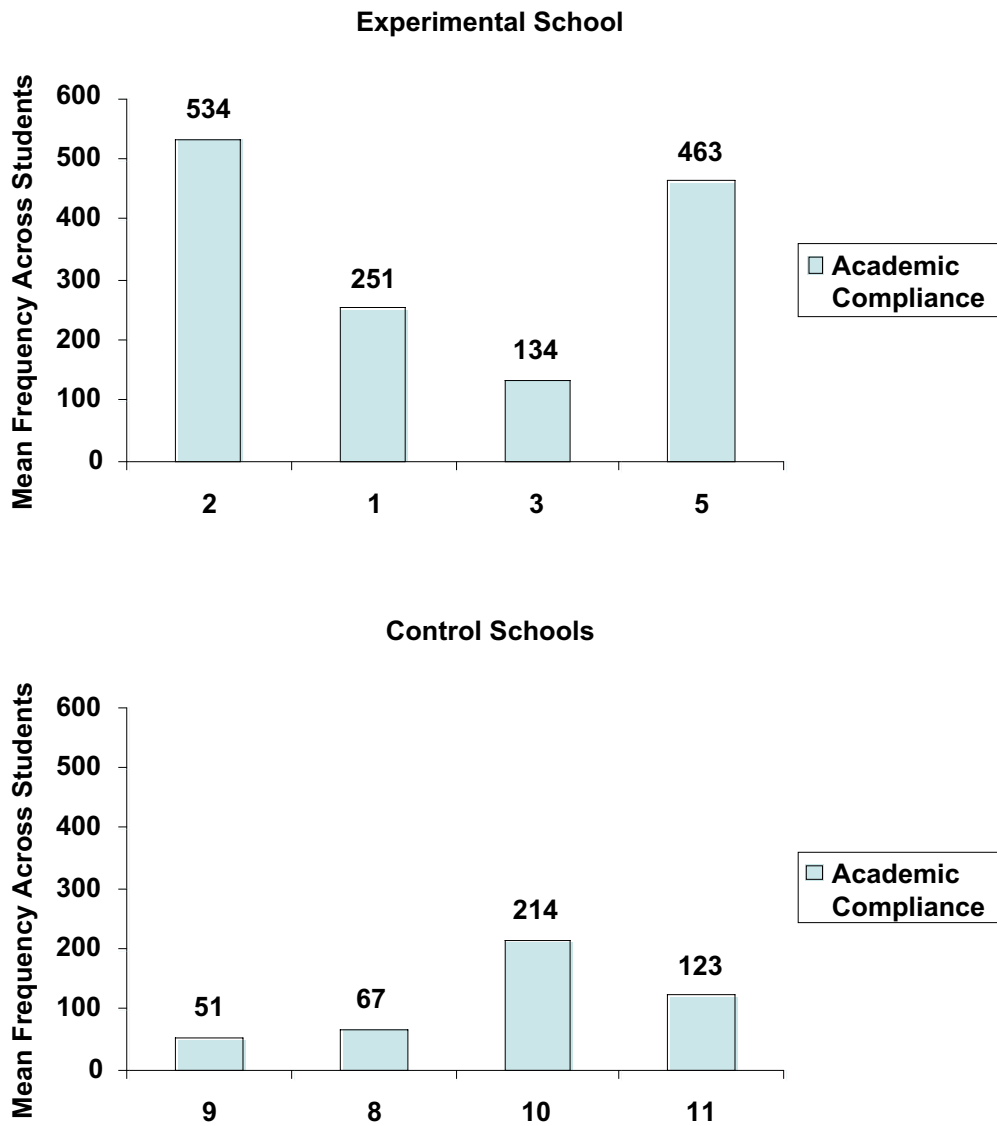
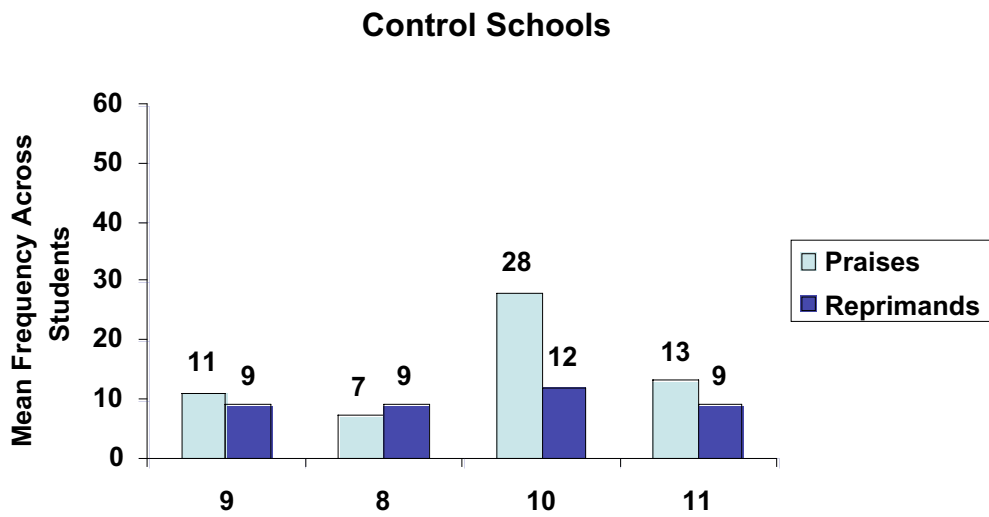
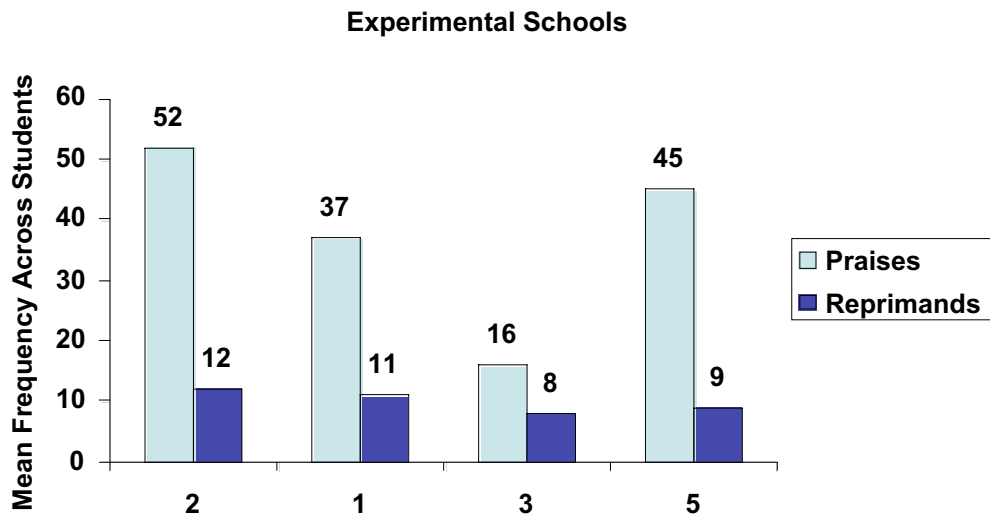


Figure 2. Student response levels during reading instruction across experimental and control schools.

Kamps, D. M. and Greenwood, C. R. (2003, December). *Formulating Secondary Level Reading Interventions*. Paper presented at the National Research Center on Learning Disabilities Responsiveness-to-Intervention Symposium, Kansas City, MO.



Kamps, D. M. and Greenwood, C. R. (2003, December). *Formulating Secondary Level Reading Interventions*. Paper presented at the National Research Center on Learning Disabilities Responsiveness-to-Intervention Symposium, Kansas City, MO.

***Variables influencing implementation and maintenance of secondary intervention.***

Observations and anecdotal reports from schools in the study indicated variation in the ability to implement interventions in a timely fashion for all students at risk for reading problems. Variables that appeared to increase implementation efforts included:

- (a) a core group of teachers working together to ‘get the job done’,
- (b) special and general educators pooling resources,
- (c) early screening and targeting of at risk students as dictated in the 3-tiered model,
- (d) creative/flexible scheduling to allocate sufficient time to small group instruction,
- (e) creative uses of personnel resources i.e., many people teaching reading groups,
- (f) flexibility providing curriculum changes to support key early literacy skills; staff support for increased use of phonics-driven curriculum for larger numbers of students.

***What is the Initial Efficacy of Secondary Intervention for 1<sup>st</sup> Graders Over a 3-5 Month Period?***

DIBELS measures were collected for the first grade students in the fall 2002 (serving as both baseline and screening), winter 2003, and again in spring 2003. Intervention began in schools during the November to January months, thus outcomes

reflect initial improvements. Results are reported in terms of simple mean, descriptive statistics as well as growth curves. Reported are two sets of findings, the first for all first grade students in the experimental and control groups, and the second for the students designated as at risk in the fall and experiencing secondary intervention.

***Nonsense Word Fluency: All students.***

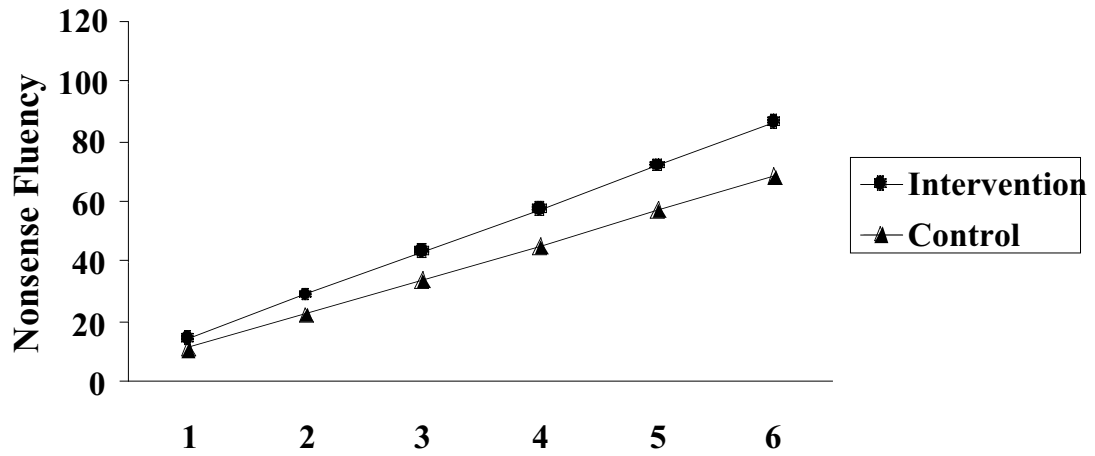
Growth in all students’ scores was observed for both experimental and control group students. The percentage of students with reading risk in small group instruction that met benchmark after a relatively short time was 50%, 42%, 24%, and 22%, respectively across intervention schools, compared to 4%, 6%, 11%, and 36% for the control group (see Table 3). In the experimental schools, students grew from 29.02, 47.33, and 59.79, respectively over fall, winter, and spring assessments (a mean gain of 30), compared to control school students’ growth at 21.42, 34.13, and 43.52 (a mean gain of 22). The benchmark score for the winter Nonsense Word Fluency assessment for first grade is 50 per minute. Figure 4 (bottom panel) reflects the values for modeled growth curves for all first grade students that include future forecasted values based on this rate of progress over the next 3 data points. Forecasted outcomes suggest mean gains of 77 for the experimental group compared to only 54 for the control group.

**Table 3***Percent of Students Progressing to Nonsense Word Fluency Benchmark at end of First Grade*

<b><i>Experimental Schools</i></b>	<b><i>All First Graders</i></b>	<b><i>At Risk First Graders</i></b>	<b><i>Intervention Curricula -- Mean % Time in Small Group Instruction</i></b>
School 1	61% n = 41	50% n = 26	Proactive Reading/Read Well 21%
School 2	62% n = 65	42% n = 24	Reading Mastery 35%
School 3	27% n = 37	24% n = 25	Programmed Reading 31%
School 5	51% n = 49	22% n = 23	Proactive Reading 42%
<b><i>Control Schools</i></b>	<b><i>All First Graders</i></b>	<b><i>At Risk First Graders</i></b>	<b><i>Intervention Curricula -- Mean % Time in Small Group Instruction</i></b>
School 8	17% n = 42	4% n = 26	-- 5%
School 9	16% n = 61	6% n = 47	-- 6%
School 10	21% n = 57	11% n = 27	Literature -- Guided Reading 20%
School 11	50% n = 48	36% n = 14	Open Court – Reading Mastery 35%

Kamps, D. M. and Greenwood, C. R. (2003, December). *Formulating Secondary Level Reading Interventions*. Paper presented at the National Research Center on Learning Disabilities Responsiveness-to-Intervention Symposium, Kansas City, MO.

### Academic Risk



### All Students

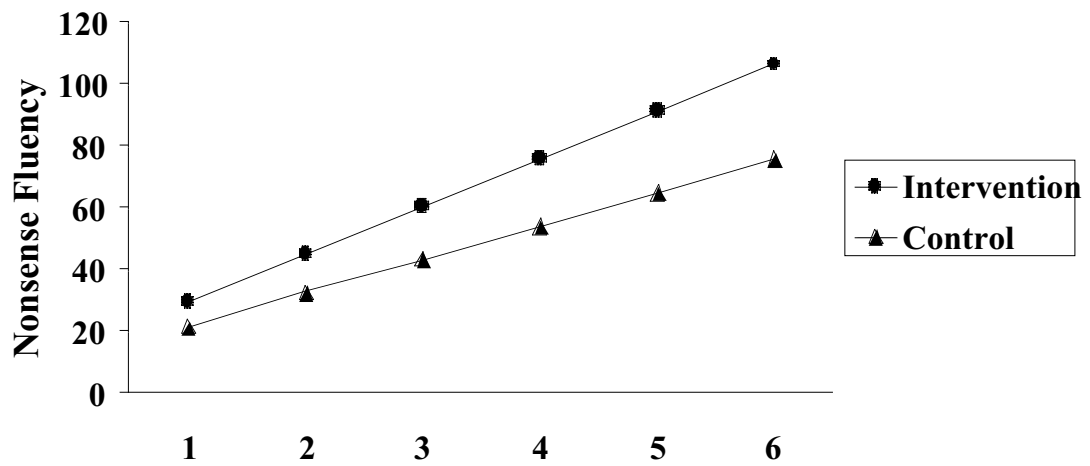


Figure 4. Nonsense word fluency trends for first graders in experimental and control schools.

***Nonsense Word Fluency: At-Risk Students.***

Progress for the students at risk for reading problems (top panel) also showed improvement over time at 12.99, 31.57, and 41.79 for the experimental group (a gain of 29), versus 9.62, 23.90, and 32.84 (mean gain of 23) for the control group. Forecasted growth (modeled growth curves), into the next year again showed larger gains for the experimental group with a mean at time 1 of 14 to a mean of 87 at time 6 (mean gain of 72), compared to the control group at time 1, 11 to time 6 at 68 (mean gain of 58). These trends favored the experimental group.

***Oral reading fluency: All students.***

Changes for oral reading, correct words per minute, showed less difference for the experimental group. Error! Not a valid link.

***Progress of Individual Students – Case Studies.*** Data presented thus far represent progress of groups of students across experimental and control conditions. Examination of individual student progress data indicated a range of effects both large and small. Individual cases in both experimental

experimental group, however these data reflect an emerging skill in first grade with the benchmark for the end of first grade at 40 words per minute for the DIBELS assessment. Means for all first graders in the experimental group were 27.9 and 41.9 for winter and spring, and 23.1 and 34.8 for the control group students (see bottom panel, Figure 5).

***Oral reading fluency: At-risk students.***

Means for the high risk first graders in the experimental group were 11.1 and 23.2, respectively, and 9.5 and 17.5 in the winter and spring for the control group students (see top panel, Figure 5).

(Figure 6) and control schools (Figure 7) showing a range of progress are presented. Characteristics of students who did not make adequate progress included combined risk (i.e., reading and behavior), English language learners, and students with cognitive disability.

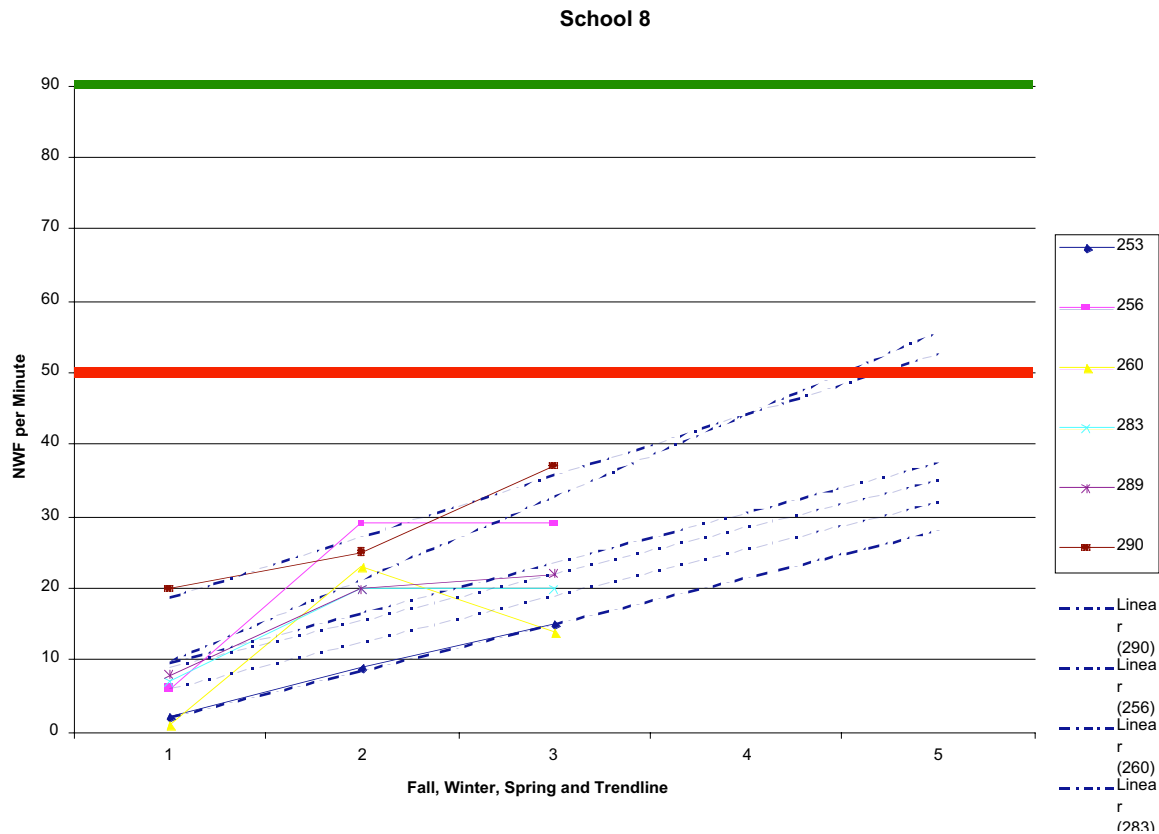


Figure 6. Nonsense word fluency trends for individual cases in an experimental school.

Kamps, D. M. and Greenwood, C. R. (2003, December). *Formulating Secondary Level Reading Interventions*. Paper presented at the National Research Center on Learning Disabilities Responsiveness-to-Intervention Symposium, Kansas City, MO.

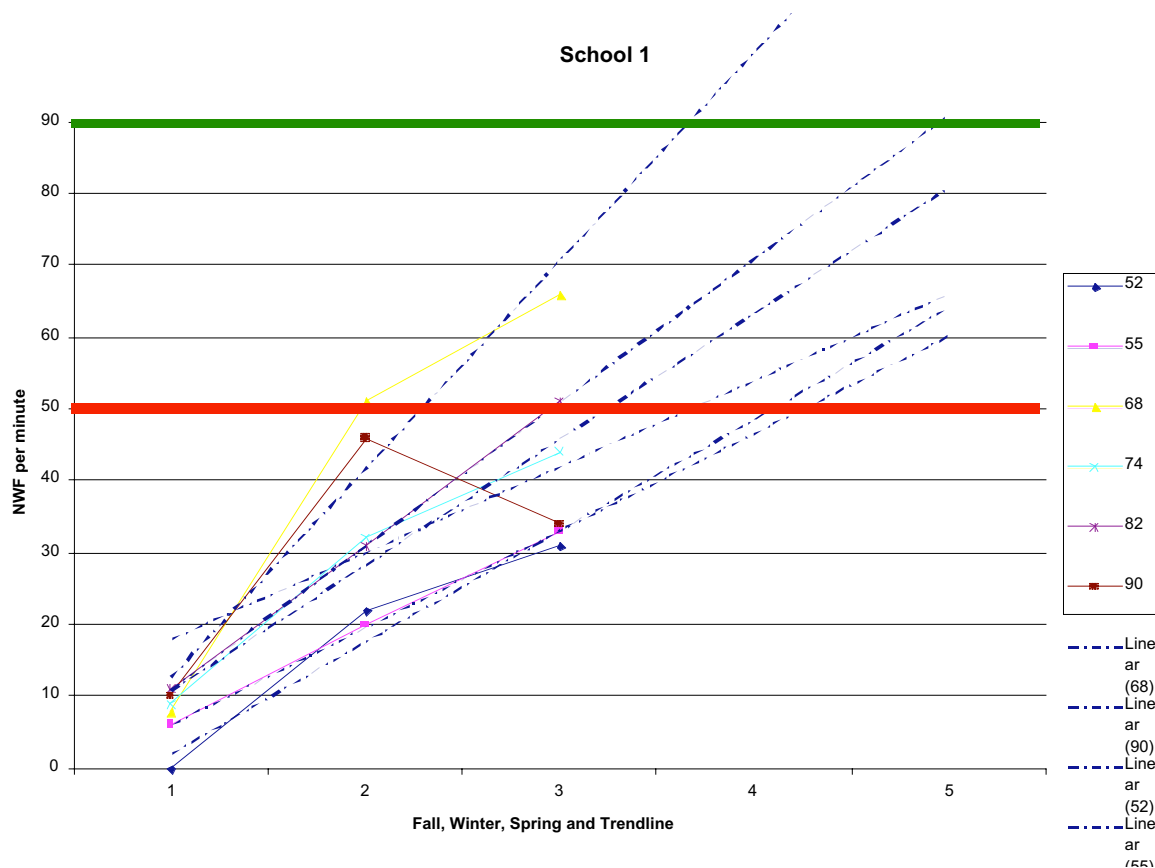


Figure 7. Nonsense word fluency trends for individual cases in a control school.

## Discussion

In this paper, we discuss the issue of formulating secondary-level reading interventions in a randomized trial underway at the Kansas Center. Addressed were issues related to: What evidence-based practices/strategies shaped the planning and delivery of secondary reading interventions in local elementary schools? How large is the school population of students at risk and qualifying for secondary interventions? What training, professional development, and support is needed to implement, improve, and sustain secondary intervention in local schools, and what was the initial im-

pact on instruction and student performance? and What is the initial efficacy of secondary intervention for 1st graders over a 3-5 month period?

### *Impact of Evidence-based Reading Practices on Classroom Instruction*

Results from the initial fall screening using the DIBELS clearly showed remarkably high levels of risk for reading failure across participating schools. It is our considered opinion that these results are related to the district's mandated curricula choices that are not based on scientific evidence (Kamps, Wills, Greenwood, Lien, & Lazo, in press), and that do not bode well for students nor schools particularly given the mandates of

No Child Left Behind to improve reading results. High risk schools need reading programs with strong emphases on phonemic awareness and systematic phonics instruction combined with 3-tiered models that identify early and intensive instruction to students' learning to read before reading problems emerge.

Our findings indicated that there will continue to be a need for secondary intervention for more students in high risk schools given use of non-phonics reading instruction. On a positive note, some of the accelerated rates of growth favoring experimental group students in these preliminary and incomplete findings were very much linked to the secondary, small-group reading intervention initiated as part of the study, and the selected curricula which incorporated these components.

Findings showed key differences among the groups including, (a) increased amounts of time in small group versus whole class instruction, (b) increased use of systematic phonics instruction as part of the reading program, (c) increased amounts of time spent on active reading engagement (i.e., reading aloud and reading silent), (d) higher levels of teacher praise and lower levels of reprimands for intervention schools, and (e) higher scores on the DIBELS winter and spring assessments for nonsense and oral reading. Findings also indicate, however, that there is a need for more fluency practice within intervention to improve oral reading scores by the end of first grade.

#### ***Implications for Formulating Continued Secondary and Tertiary Level Intervention***

Professional development efforts in year one supported the use of planned secondary level intervention for the majority of at-risk students. However, implementation

required intensive training, on-going, and follow-along efforts by the research support team. Year 2 implementation in contrast, however, required re-training and assistance for new teachers. Additional efforts were targeted at maintaining the 3-tiered model included (a) collaboration to establish school level staff to provide training for new teachers in subsequent years, and (b) guidance from research staff related to adoption of the 3-tiered model. Extended professional development is required to address development and strengthening of the following critical components:

- (a) a functional instructional team to address management of reading interventions,
- (b) a strong instructional leader to support the 3-tiered model,
- (c) mastery by school personnel of the screening and progress monitoring procedures,
- (d) understanding of school staff of data-based decision making to determine recipients of reading intervention at an early point for students falling behind, and
- (e) understanding by school staff of the relationship between instructional processes (teacher behaviors, contextual variables) and student outcomes.

These critical variables and shaping of school level expertise further requires on-going strategic professional development and technical assistance from the research team.

Additional variables for maintaining an effective early intervention for reading risk are related to decision making (i.e., entry points, and how much progress is enough to warrant exiting, continuing, or revising). Options underway are more frequent pro-

gress monitoring, and determining a criteria for “when to change”, that is decision rules for moving students in and out of the secondary level intervention. Currently, students must meet benchmark DIBELS levels for two assessment periods (8-9 weeks apart) before exiting the secondary intervention. Changes in secondary intervention for those making inadequate progress include reduced group size, more intervention sessions, the addition of a behavioral intervention within reading sessions, and additional intervention to teach language as well as early literacy skills. Use of an alternate more intensive curriculum, with long-term use of small groups with smaller teacher student ratios (1:1 and 1:3), and referral for special education services is considered implementation of a tertiary level intervention. Progress has been made, findings are preliminary, and questions regarding formulating, implementing, improving, and maintaining a school-wide approach to reading and behavior intervention management require further investigation and analysis.

## References

- Abbott, M., Walton, C., & Greenwood, C. R. (2001). Research to practice: Phonemic awareness in kindergarten and first grade. Teaching Exceptional Children, 34, 20-26.
- Abbott, M., Walton, C., Tapia, Y., & Greenwood, C. R. (1999). Research to practice: A "blueprint" for closing the gap in local schools. Exceptional Children, 83, 339-362.
- Adams, M., (1990). Beginning to read: Thinking and learning about print. Cambridge, JA: NUT Press.
- Al Otaiba, S., & Fuchs, D. (2001). Characteristics of children who are unresponsive to early literacy intervention: A review of the literature. Remedial and Special Education, 23, 300-316.
- Bryne, B., & Fielding-Barnsley, R. (1993). Evaluation of a program to teach phonemic awareness to young children: A 1-year follow-up. Journal of Educational Psychology, 85, 104-111.
- Chard, D. J., & Kame'enui, E. J. (2000). Struggling first-grade readers: The frequency and progress of their reading. The Journal of Special Education, 34, 28-38.
- Coyne, M. D., Kame'enui, E. J., & Simmons, D. C. (2001). Prevention and intervention in beginning reading: Two complex systems. Learning Disabilities Research & Practice, 16, 62-73.
- Ehri, L. (1991). Development of the ability to read words. In R. Bard, M. Kamil, P. Moosenthal, & P. Pearson (Eds.), Handbook of Reading Research (vol2., pp. 383-417). New York: Longman.
- Ehri, L., & Soffer, A., (1999). Graphophonic awareness: Development in elementary students. Scientific Studies of Reading, 3, 1-30.
- Englemann, S. (1997). Theory of mastery and acceleration. In J. W. Lloyd, E. Kame'enui, & D. Chard (Eds.), Issues in Educating Students with Disabilities (pp. 117-195). Mahwah, NJ: Erlbaum.
- Felton, R., & Pepper, P. (1995). Early identification and intervention of phonological deficiencies in kindergarten and early elementary children at risk for reading disability. School Psychology Review, 24, 405-414.
- Foorman, B., Francis, D., Fletcher, J., Schatschneider, C., & Mehta, P. (1998). The role of instruction in learning to read: Preventing reading failure in at-risk children. Journal of Educational Psychology, 90, 37-55.
- Good, R., Simmons, D., & Smith, S. (1998). Effective academic interventions in the United States: Evaluating and enhancing the acquisition of early reading skills. School Psychology Review, 27, 45-56.
- Greenwood, D., Terry, B., Arreaga-Mayer, C., & Finney, R. (1992). The classwide peer tutoring program: Implementation factors moderating students' achievement. Journal of Applied Behavior Analysis, 24, 101-116.
- Kame'enui, E., Good, R., Simmons, D., & Chard, D. (April, 2002). Project Kamps, D. M. and Greenwood, C. R. (2003, December). *Formulating Secondary Level Reading Interventions*. Paper presented at the National Research Center on Learning Disabilities Responsiveness-to-Intervention Symposium, Kansas City, MO.

- CIRCUITS: Toward a Primary, Secondary, and Tertiary Prevention System in Schools. Paper presented at the Annual Convention of the Council for Exceptional Children, New York: New York.
- Kamps, D., Wills, H., Greenwood, C., Thorne, S., Lazo, J., Crockett, J., Akers, J., & Swaggart, B. (in press). Curriculum influences on growth in early reading fluency for students with academic and behavioral risks: A descriptive study. Journal of Emotional and Behavioral Disorders.
- McMaster, K., N., Fuchs, D., Fuchs, L.S., & Compton, D. L. (in press). Monitoring the academic progress of children who are unresponsive to generally effective early reading intervention. Assessment for Effective Intervention.
- O'Connor, R. E., (2000). Increasing the intensity of intervention in kindergarten and first grade. Learning Disabilities Research & Practice, 15, 43-54.
- O'Connor, R., Notari-Syveson, A., & Vadasy, P. (1996). Ladders to literacy: The effects of teacher-led phonological activities for kindergarten children with and without learning disabilities. Exceptional Children, 63, 117-130.
- Torgesen, J., Alexander, A. W., Wagner, R. K., Rashotte, C. A., Voeller, K., & Contay, T. (2001). Intensive remedial instruction for children with severe reading disabilities: Immediate and long-term outcomes for two instructional approaches. Journal of Learning Disabilities, 34, 33-58, 78.
- Walker, H., M., & Severson, H. H. (1992). Systematic screening for behavior disorders (SSBD): Technical manual. Longmont, CO: Sopris West.