Improving the Use of Data in Early Reading Intervention Programs in Northwest Florida

Carla J. Thompson

University of West Florida

Improving student performance for high-need student populations by improving the use of data in decision-making for early reading intervention programs in northwest Florida is the focus of this research to practice effort. The study is conceptually based on using a relational-feedback intervention (RFI) database model in early learning environments. The innovative use of data is the incorporation of trained classroom observers who performed over 2,000 observations (30 minutes each) in randomly selected reading (K–3) classrooms over a 2-year period using a quantitative observation tool that depicts 85 differentiated reading strategies. The RFI database model aligns classroom observation data to student achievement data with feedback interventions provided to schools. Empirical results that lend support for the use of the RFI database model include increased student achievement in early reading, closing of achievement gaps, increased informed decision making, and improved quality of professional development and communications about early learning for teachers/principals, stakeholders, and parents.

Keywords: classroom observations, differentiated reading, early learning, relational databases

Introduction

The use of data to improve student achievement in early reading is strongly advocated by the International Reading Association (IRA, 1999) and the Florida Center for Reading Research regarding the *Reading First* schools (Crawford & Torgesen, 2006). Successful *Reading First* schools with strong intervention outcomes were found to have the following common traits: "strong leadership, positive belief and teacher dedication, data utilization and analysis, effective scheduling, professional development, scientifically based intervention programs, and parent involvement" (p. 2). This study focused on improving student performance for high-need student populations by improving the use of data in decision-making for early reading intervention programs in northwest Florida by implementing an innovative data utilization and analysis model that incorporated the *Reading First* common traits.

This article summarizes the 2008–2010 research study partnership between a university and a school district in northwest Florida relative to the infusion of a relational-feedback intervention (RFI) database model into an early (K–3) reading intervention program for differentiated reading and examines the impact of the model on student achievement, closing gaps, and teacher effectiveness.

Please address queries to: Carla J. Thompson, Ed.D., Associate Professor & Director, Community Outreach Research and Learning Center, College of Professional Studies (77/104), University of West Florida, 11000 University Parkway, Pensacola, FL 32514. Email: cthompson1@uwf.edu

Related Literature

The largely unmet need for school districts to utilize high-quality research design and databases with sophisticated statistical analyses for instructional decision-making is evidenced in the literature related to differentiated reading interventions as an instrumental approach to early reading (IRA, 1999; Batsche & Curtis, 2007). The specific use of relational databases and highquality research design to improve the use of data in early reading is supported by multiple research efforts (Batsche & Curtis, 2007; Hops & Reschly, 2003; Schatschneider et al., 2004; Torgesen, 2007).

The Florida Center for Reading Research lists current research efforts that corroborate the types of research designs, data considerations, and variables that were examined in the study (2008–2010). The use of the Non-equivalent Quasi-experimental Control Group Design is corroborated by Torgesen (2009) with first and second graders using tertiary intervention as the treatment to examine differences between the treatment group and the control group on average words per minute in reading. Longian (2009) used a randomized controlled trial design to explore how variations in professional development for teachers affect the fidelity of implementation and impact on educational outcomes for preschool children at risk for later academic difficulties. Torgesen (2009) examined closing reading gaps in Grade 3 using reading intervention methods. Buck and Torgesen (2003) conducted a correlation study to determine the predictability of specific oral reading fluency measures as reliable predictors of early reading achievement. Schatschneider et al. (2004) utilized a multivariate analysis procedure for prediction to explain variability and to identify dominant factors (such as fluency and verbal knowledge) in third graders that contribute to individual differences in reading achievement.

Evidence for practice and evidence of participants and settings that align with the current study involving the use of a RFI database model are prominent in prior reading research and practice efforts. Gersten et al. (2008) support monitoring various classroom instruction episodes involving differentiated reading strategies that are inherent in the classroom observation instrument used in the present study and the corresponding data retrieved for the RFI database model. Support for the infusion of the RFI database model in multiple schools with participants and settings that parallel the current study is evidenced by the Florida Problem Solving/Response to Intervention (RtI) Project, whereby a collaborative project between the Florida State Department of Education and the University of South Florida examined the impact of RtI professional development efforts in 40 pilot schools (Batsche & Curtis, 2007). The importance of connecting teacher professional development to classroom instructional strategies and then to student reading achievement that is integral to the current study is also demonstrated in the findings of Hudson (2009), who compared reading teachers' knowledge of reading fluency to their students' performance in oral reading fluency in grades 1–3; thus, the related literature and research evidence support the current study from a conceptual, methodological, and practical foundation.

Statement of the Problem

Although the use of a relational database is not a new concept for capturing and analyzing data to produce information across varying types of data files (Codd, 1970), the notion of integrating a relational database with specific formative and summative assessment processes, using high-quality research and statistics to generate relational data files, and providing feedback to schools within the relational database structure is not a widely adopted practice within school districts, especially rural and high need districts (Englert, Fries, Goodwin, Martin-Glenn, & Michael, 2004). Few school districts have the funding or expertise for maintaining research departments but sometimes employ instructional technology departments to develop systems for integrating and relating data files

(Pembrook, 2010); however, these types of relational databases, often created by private software companies and school districts' instructional technology departments, focus on descriptive information (demographics, attendance, disciplinary actions, class schedules, grades, and achievement test scores) with no means for addressing in-depth instructional strategies data and empirically connecting classroom instruction to professional development and student achievement in order to generate data-driven decisions for district school personnel. Unlike data-intensive industries in the private sector, school districts do not generally have access to sophisticated social science research and statistical analyses that pertain to high-quality assessment and instruction relational databases. The current study utilized a northwest Florida school district comprised of 17 high-need, rural elementary schools (with approximately 5,000 students in the K-3 early reading education program) and the research partnership with a neighboring university educational research center. The school district did not have access to any type of relational databases or feedback on classroom instruction related to student achievement prior to conducting the study. In addition, the school district does not support any type of assessment, research, or evaluation department. Recent severe budget cuts within the district also substantially reduced the number of reading teachers (and reading coaches) in the primary (K-3) grades and almost annihilated funding for professional development in virtually all areas. The present study addressed a two-fold problem: (1) investigating the impact of specific differentiated reading strategies on early reading achievement using an RFI database model and scientific data analysis procedures and (2) assisting the school district in effectively using data to determine empirical connections between differentiated reading instruction and student performance in early reading for purposes of improving instruction and student performance.

The present study connected teacher professional development data, classroom observation data reflecting reading strategies used in teaching and learning, and student achievement data by means of a relational database model. It then provided specific feedback information regarding the effectiveness/ineffectiveness of specific differentiated reading strategies to appropriately prepare teachers to work with struggling readers and students with disabilities in K–3 reading programs within a northwest Florida school district. The major research question posited for the study is this: Which differentiated reading strategies observed in early reading classrooms significantly improve student reading achievement scores?

Methodology

The methodology for the present study involves two areas of discussion: (1) a description of the RFI database model and (2) a description of the research design and data collection, instrumentation, and data analyses procedures used in the study.

RFI Database Model

The RFI database model used as the conceptual framework for the study is depicted in Figure 1.



Figure 1: Relational Feedback Intervention Database Model. Note: Rtl = response to intervention; SAT10 = Stanford Achievement Test Version 10; FCAT = Florida Comprehensive Achievement Test.

The current research study incorporated the RFI database model depicted in Figure 1 for the purpose of connecting teacher professional development data, classroom observation data reflecting reading strategies used in teaching and learning, and student achievement data within formative and summative assessment periods and includes periodic feedback intervention cycles.

The basic cycle operation of the model depicted in Figure 1 involves a six-component flow pattern that is, the flow begins with the teacher professional development pre- and postassessments during the summer, which are then connected in the relational database model to the classroom observation data retrieved during the first semester of the cycle and then connected to student midyear benchmark achievement data (formative assessment data). The cycle continues with additional classroom observation data retrieved during the second semester of the academic year and then connected to end-of-year student achievement data. Feedback provided by the cycle operation at midyear relational database formative findings and end-of-year relational database summative findings is directly addressed by researchers and school personnel (teachers and school officials) to direct specific decision-making regarding the planning and implementation of each new summer professional development program for K–3 reading teachers, and the cycle continues with relational feedback and intervention.

The model provides specific information regarding effectiveness and ineffectiveness of specific differentiated reading strategies relative to appropriately preparing teachers to work with struggling readers and students with disabilities in early reading programs. The use of the RFI database model provides an empirical vehicle for propelling school districts (teachers and school officials) toward informed data-driven decision-making.

Research Design

Two types of research designs were employed in the present study over a 2-year time period. The first year of the study utilized Design 10: pretest-posttest non-equivalent control group design (Campbell & Stanley, 1963) for Phase I (2008–2009) of the 2-year study. Students of reading teachers who had completed the summer intense professional development program focused on differentiated reading strategies were the designated treatment group and students of those teachers who did not participate in the differentiated reading professional development program comprised the control group for implementing the Design 10 research effort. Students' pre and post reading achievement scores (2008 Florida Comprehensive Achievement Test [FCAT] and Stanford Achievement Test Version 10 [SAT10] reading scores were used as preassessments, and 2009 FCAT and SAT10 reading scores were used for postassessment), with preassessments serving as the covariate for performing analysis of covariance, the analysis of data approach utilized for the first year research design.

The second year of the study involved the use of a predictive or correlation-multiple regression research design for Phase II (2009–2010) of the 2-year study. In the second year of the study, all K–3 reading teachers in the district were provided a required summer professional development program focused on understanding the RFI database model and the potential impact of classroom differentiated reading strategies and their specific contributions to K–3 reading achievement relative to student achievement. Multiple regression analysis was performed for the Year 2 data analysis effort with the eight subscales from the classroom observation instrument used as the independent variables and student reading achievement (FCAT scores and SAT10 scores, as well as other appropriate achievement tests for K–3 levels) as the separate dependent variables.

The use of the two specific research approaches is substantiated in the literature as strongly supportive of high-quality research and significant outcomes. The use of ANCOVA for Phase I of the

study is advocated by Campbell and Stanley (1963) as appropriate for analyzing data regardless of whether the treatment was randomly assigned to the two groupings or if the treatment was "experienced by voluntary participants" (p. 49). In the present study, the K–3 reading students in the control group were led by teachers who used some or no instructional strategies indicative of differentiated reading instruction, whereas K–3 students in the treatment group were led by teachers with specific training (professional development) in differentiated reading instruction and guided usage of differentiated reading strategies. Scammacca, Vaughn, Roberts, Wanzek, & Torgesen (2007) indicated that, "a smaller effect size from a study where control group students received some intervention may indicate a greater impact for the intervention than a larger effect size where the control group received only typical instruction" (p. 7). In addition, the use of multiple regression analysis rather than ANOVA methods for conducting quality educational research to provide explanations for the impact of specific interventions or instructional strategies on student achievement measures is advocated by Nelson, Nelson, and Zaichkowsky (1979).

Data Collection, Instrumentation, and Analyses

Three types of data were collected for use in the study: (1) teacher data from pre- and posttest assessments of teachers during the summer professional development workshops that were focused on differentiated reading instructional strategies and differentiated reading implementation in classroom instructional settings; (2) classroom observational data retrieved by trained observers visiting randomly selected K–3 classrooms and recording instructional strategies used in reading on an observation form; and (3) student achievement data obtained from midyear and end-of-year standardized tests reflecting reading achievement. Instrumentation utilized in the study includes three types of data collection tools.

Teacher Professional Development Assessment Form

The Teacher Professional Development Assessment Form (see Appendix A) was used as the pre- and postcognitive and affective self-reporting Likert scale measure of teachers' perceived confidence of their knowledge levels and attitudes toward the use of specific differentiated reading strategies. The form was used to preassess K–3 teachers prior to their participation in professional development summer institutes focused on differentiated reading and to postassess K–3 teachers after they completed their professional development sessions devoted to differentiated reading. The form was developed by the university research team and pilot tested prior to the study. A reliability coefficient of internal consistency (Cronbach alpha = .92) was generated from pilot data. Establishing content and construct validity for the Teacher Professional Development Assessment Form was accomplished by aligning the conceptual framework of differentiated reading literature to the items generated for the assessment instrument and by examining the specific factors (constructs) that emerged from a factor analysis performed on the pilot data set.

Classroom Observation Form

The Classroom Observation Form (see Appendix B) is a quantitative checklist of 85 specific differentiated reading strategies grouped into eight strands that represent specific focus areas, including vocabulary, fluency, word study, comprehension, class groupings, student engagement, differentiated activities, and material types. The 85 strategies listed on the observation instrument comprise eight subscales and were generated from three sources: (1) instructional strategies reflecting differentiated reading intervention practices, (2) instructional strategies indicative of differentiated reading research evidence (Tyner, 2004), and (3) instructional strategies suggested

during a series of focus group discussions with the school district early reading teachers. Appendix B provides an excerpt of the Classroom Observation Form focused on the vocabulary strand.

Trained observers (university graduate education students) were utilized as external classroom observers to record 30-minute sessions in randomly selected K–3 classrooms weekly for 20 weeks each year for 2 years in all 17 elementary schools within the district. Each observer recorded data on one observation form for one 30-minute observation session. Three kinds of data were recorded for each of the 85 specific differentiated reading strategies during the 30-minute observation session, as indicated on the observation form in Appendix B. For one, a checkmark was placed in the column designated "observed activity" if the strategy was observed. In addition, the number of students involved in the observed activity was recorded in the column designated "number of students." Finally, the time in minutes (out of 30) that the observed activity occurred during the observed during the 30-minute observation period. The Classroom Observation Form was developed and pilot tested by the university research team prior to implementation of the study. Inter-rater reliability was established among the four university graduate students with reliability efforts exceeding values of .87. Data from the eight strands depicted by the Classroom Observation Form were used as independent variables in the study.

Student Reading Performance Measures

Several commercial reading performance measures were utilized in the study for assessing student achievement in reading for K–3 students. The major instruments utilized for measuring reading achievement include the SAT10 (Pearson Education, Inc., 2008) and the FCAT (Florida Department of Education, 2009). Only the reading subtests of the SAT10 and the FCAT were used in the study for assessing reading achievement.

Analysis of Data

Professional development pre- and posttest teacher data were analyzed using the dependent *t*-test procedure. These results were then examined relative to the classroom observation data. Descriptive observational data were paired with teacher data to determine teacher professional development alignment with classroom instructional strategy implementation levels and emphases.

The innovative use of data that identifies the study as appropriate for serving as the empirical foundation for the RFI database model is the use of the trained classroom observers (university graduate education students) who performed 680 observations (each 30 minutes) in randomly selected K–3 reading classrooms in Year 1 and 1,480 observations (each 30 minutes) in randomly selected K–3 reading classrooms in Year 2 using the Classroom Observation Form, a quantitative observation tool that depicts 85 strategies reflecting eight strands or subscales (vocabulary, fluency, word study, comprehension, class groupings, student engagement, differentiated activities, and types of materials) in differentiated reading conceptual frameworks.

Classroom observation data were reported with descriptive (frequency distributions) statistics for providing schools with the actual usage of differentiated reading instruction within the classroom that was observed during the 2-year period with trends and changes in instructional focus of the 85 strategies and/or eight strands described in the descriptive statistical reporting. In addition, classroom observation data were analyzed using multiple regression analysis to determine specific contributions of each of the eight subscales and 85 instructional strategies to student reading achievement. *R*-square values for significant contributions of the observations to student reading

achievement data are some of the most useful relational data analyses performed in the study for responding to teachers' reflections of the specific activities performed in their classrooms.

In Year 1 of the study, a natural control group of teachers (approximately 200 K–3 teachers) who had not participated in the summer professional development session focused on differentiated reading was used to compare classroom observational data and student achievement data with that from the group of teachers (approximately 180) who had participated in the intensive summer professional development program. ANCOVA was used in Year 1 of the study to determine mean differences in students' reading achievement scores between the two groups of students identified by their respective teachers' participation or no participation in the professional development with students' previous year achievement scores in reading used as the covariate for the analysis.

The ANCOVA procedure was not employed during Year 2 because all of the K–3 teachers (nearly 400) participated in the professional development session, thereby eliminating the natural control group. Additional descriptive and inferential statistical procedures were utilized in the study to further delineate the interrelationships of the RFI database model. These considerations and study results using ANCOVA and multiple regression analyses connecting teacher professional development data to classroom observational data to student achievement data provide the basis for the sound methodology used in the study and generate results pertinent to researchers and practitioners.

Selected Results

Results of the study are presented relative to selected outcomes and are presented from both researcher and practitioner perspectives to provide a solid blending of findings representative of the partnership efforts between the university research team and school district personnel.

Selected Research Findings

Selected significant research findings of the study include (a) reading comprehension gaps between struggling readers and nonstruggling readers narrowed by a significant (p < .01) 9% reduction; (b) reading strategies depicting pull-out programs and walk-and-read models were found to be more effective (significantly higher student mean scores) than other models, as reflected by the classroom observation strategies; (c) students working in small groups in reading contributed a significant (p < .001) 8% of the variability in reading achievement; and (d) the fluency subscale comprises four strategies (choral reading, lead reading, echo reading, and partner reading that comprise the fluency subscale) contributed a significant (p < .001) 7% of the variability in reading achievement for K–3 teachers and observed in the reading classrooms was found to be a significant (p < .01) 23% of the variability in student reading achievement.

The effect size of the ANCOVA analyses using the SAT10 standardized student reading achievement scores resulted in an effect size range of d = .23 (N = 576 students) to d = .54 (N = 1,207 students), indicating a small to medium standardized mean difference (Cohen, 1988). The magnitude of the intervention effect is also assessed by the actual mean differences and the significance level of the mean differences reported in the study, or a resulting outcome of p < .001, with higher student means in Year 1 for students of teachers who participated in differentiated reading professional development. These outcomes are corroborated by prior research efforts concerned with effect size relative to early reading interventions (Elbaum, Vaughn, Hughes, & Moody, 2000; Scammacca et al.,

2007; Vaughn, Wanzek, & Fletcher, 2007). These findings suggest strong support for the use of the RFI database model for use in connecting instruction to student performance.

Selected Practitioner Findings

Results of the study indicate that differentiated reading strategies used in grades K–3 are effective in narrowing the gaps in reading achievement among struggling readers and nonstruggling readers. Findings from the study indicate that differentiated reading strategies that are typically used with walk-and-read and pull-out programs are more effective than other models used with differentiated reading strategies. Also, allowing students to work in small groups in early reading learning is more successful in improving reading achievement scores than working with students in full-class configurations. Overwhelming data from classroom observations indicate that four specific differentiated reading strategies that are focused on the teaching and learning of fluency—that is, choral reading, lead reading, echo reading, and partner reading—are the most effective instructional strategies for improving students' reading achievement scores. Finally, data analysis results demonstrate strong support for teachers who have transformed their perspective of teaching and learning in early reading into a sound differentiated reading intervention approach (rather than a traditional whole-class instruction approach) as substantial influences for their students to excel in reading achievement.

Connecting the RFI Database Model to Instructional Practice

Perhaps the greatest merit of the study is the way in which the RFI database model was directly connected to instructional practice—that is, the integration of relational data feedback as an intervention for school personnel (teachers and administrators) throughout the research study. The inherent efforts of the research process to maintain accurate data and to inform K–3 educators and staff within periodic time periods are key elements of the research process that identify the RFI database model as an effective method for communicating and driving informed decision-making to improve instruction. School officials were provided monthly reports throughout the 2-year study, with observed reading instruction reported in graphical form. Reading teachers (K–3) were provided immediate "pictures," or simple bar graphs, of occurrences and/or time spent on specific differentiated reading instruction from observers within 24 hours of visiting their classes if they requested immediate feedback from the observers. Districtwide feedback reports and presentations by the university research team were conducted periodically through the 2-year project span and some special informal feedback sessions were provided by the university research team as requested to further explain and discuss data analysis procedures and findings as needed.

These intervention data feedback sessions focused on the relational nature of the data and the key role that intervention of data feedback plays in understanding and improving classroom instruction. For example, one of the key components of a differentiated reading conceptual framework for Grade 1 reading classrooms is a focus on fluency or using instructional strategies that emphasize fluency concepts. Classroom observational data reflecting an emphasis on fluency should be evidenced in Grade 1 classrooms to coincide with differentiated reading strategies such as echo reading, choral reading, whisper reading, lead reading, partner reading, timed reading, and repeated reading. Observers marked the occurrences of these seven types of fluency indicators, the number of students involved in each of the observed types of fluency activities, and the amount of time within a 30-minute classroom observation period that these fluency activities were observed. These data were then communicated by the university research team to Grade 1 teachers and graphed over time relative to individual classrooms and individual schools for the duration of the 2-year study. Additionally, Grade 1 reading teachers were provided with feedback regarding specific empirical

relational fluency data analyses findings such as the significant impact of choral reading, lead reading, echo reading, and partner reading as effective instructional strategies for improving student achievement in reading in Grade 1. The university research team provided these types of data feedback reports as periodic intervention techniques for teachers to use in informed decision-making efforts.

Likewise, findings from the relational database and empirical analyses of classroom observations and student achievement data were periodically graphed and reported to key school and district personnel as feedback for intervention purposes. Formative data from classroom observations reflecting reading instructional practices were provided to school and district personnel monthly and quarterly, with accumulated data and trend data analyses presented in formal group discussion settings within specific schools and within district-level meetings. District-level decision-making regarding the teaching and learning of reading, teacher professional development needs, and the use of specific differentiated reading strategies were discussed based on data findings from classroom observation data, teacher professional data, and student reading achievement data reflected in both formative and summative evaluation reporting efforts. Data-driven decision-making activities at the classroom, building, school, and district levels became the automatic outcomes for instructional practitioners reacting to the university research team's relational feedback intervention efforts. Decisions regarding ways to improve instruction in K-3 reading classrooms within the district were generated relative to empirically based research findings from the district's own classrooms rather than research evidence from literature. Educational practitioners within the district (teachers, principals, and district personnel), therefore, were able to actively participate in the decision-making process as informed research practitioners improving classroom instruction to enhance student performance in reading.

Conclusions and Implications

Decreases in reading achievement gaps between struggling readers and nonstruggling readers, substantial decreases over the 2-year study period, the identification of specific differentiated reading models and strategies as significant contributors to K-3 students' reading achievement scores, and distinct empirical evidence connecting teacher professional development to observed classroom instruction and student achievement are all key elements that identify the RFI database model as an effective vehicle for improving the use of data in early reading environments. Study results indicate that the RFI database model shows promise of support for improving student achievement and closing achievement gaps relative to early reading intervention programs. Study results also demonstrate evidence in support of the RFI database model as a means for improving instruction through the use of specific professional development programs focused on data-driven decision-making in early reading. Additionally, decisions regarding professional development efforts for K-3 teachers each summer within the school district are now planned relative to the RFI database model findings for early reading for the district. These findings suggest strong support for the use of the RFI database model for use with connecting instruction to student performance. In addition, the RFI database model extends the process of program evaluation to include empirical evidence that supports the model for use in determining efficacy of reading programs and strategies for furthering research efforts in early reading.

References

Batsche, G., & Curtis, M. (2007). The Florida problem solving/response to intervention project: Year 1 evaluation report. Retrieved from http://floridarti.usf.edu/resources/format/pdf/yr1_eval_report.pdf

- Buck, J., & Torgesen, J. (2003). The relationship between performance on a measure of oral reading fluency and performance on the Florida Comprehensive Assessment Test. Tallahassee, FL: Florida Center for Reading Research.
- Campbell, D., & Stanley, J. (1963). *Experimental and quasi-experimental designs for research*. Chicago, IL: Rand-McNally.
- Codd, E. F. (1970). A relational model of data for large shared data banks. *Communications of the* ACM, 13, 377–387. http://www.acm.org/classics/nov95/toc.html
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (second ed.). Lawrence Erlbaum Associates.
- Crawford, E. C., & Torgesen, J. K. (July 2006). *Teaching all children to read: Practices from* Reading First schools with strong intervention outcomes. Presented at the Florida Principals' Leadership Conference.
- Elbaum, B., Vaughn, S., Hughes, M. T., & Moody, S. W. (2000). How effective are one-to-one tutoring programs in reading for elementary students at risk for reading failure? A meta-analysis of the intervention research. *Journal of Educational Psychology*, *92*, 605–619.
- Englert, K., Fries, D., Goodwin, B., Martin-Glenn, M., & Michael, S. (2004). Understanding how principals use data in a new environment of accountability. Regional Educational Laboratory Contract #ED-01-CO-0006: MCREL-Midcontinent Research for Education and Learning.
- Florida Department of Education. (2009). *Florida Comprehensive Assessment Test*. Retrieved from http://fcat.fldoe.org/mediapacket/2009/default.asp
- Gersten, R., Compton, D., Connor, C. M., Dimino, J., Santoro, L., Linan-Thompson, S., & Tilly, W. D. (2008). Assisting students struggling with reading: Response to intervention and multi-tier intervention in the primary grades. A practice guide. (NCEE 2009-4045) Washington, DC: National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, U. S. Department of Education. Retrieved from http://ies.ed.gov/ncee/wwc/publications/practiceguides/
- Hops, J. & Reschly, D. (2003). Referral rates for intervention or assessment: The Journal of Special Education, 37, 67–80.
- Hudson, R. (2009). Understanding teacher knowledge of reading fluency and its relationship to student reading achievement. Florida State University Council on Research and Creativity. Retrieved from

 $www.fcrr.org/centerResearch/centerResearchUnderstandingTeacherKnowledge.htm \label{eq:centerResearch}$

- International Reading Association. (1999). *High stakes testing in reading: A position statement of the International Reading Association*. Newark, Delaware: International Reading Association.
- Nelson, L. R., Nelson, L. A. & Zaichkowsky, L. D. (1979). A case for using multiple regression instead of ANOVA in educational research. *The Journal of Experimental Education*. 47, 324– 330. Retrieved from http://www.jstor.org/stable/20151298
- Longian, C. (2009). Evaluating the effectiveness of preschool literacy curriculum for children at-risk. *Institute of Education Sciences.* Retrieved from http://www.fcrr.org/centerResearch/centerResearchEvaluatingEffectiveness.htm.
- Pearson Education, Inc. (2008). *Stanford Achievement Test*. Retrieved from http://www.Stanford10Online.com
- Pembrook, W. (2010). Cherry Creek School District. Sybase, Inc. Retrieved from http://www.sybase.com/detail?id=1069261.

- Scammacca, N., Vaughn, S., Roberts, G., Wanzek, J., & Torgesen, J. (2007). Extensive reading interventions in grades K-3: From research to practice. Center on Instruction, Florida Center for Reading Research. Retrieved from http://www.fcrr.org/science/pdf/torgensen/extensive_reading_interventions_k-3.pdf
- Schatschneider, C., Buck, J., Torgesen, J., Wagner, R., Hassler, L., Hecht, S., & PowellSmith, K. (2004). A multivariate study of individual differences in performance on the reading portion of the Florida Comprehensive Assessment Test: A preliminary report. Technical report #5, Florida Center for Reading Research.
- Torgesen, J. (2007). Using an RtI model to guide early reading instruction: Effects on identification rates for students with learning disabilities. Florida Center for Reading Research. Retrieved from http://www.fcrr.org/centerResearch/centerResearchUsinganRTImodel.htm
- Torgesen, J. (2009). *Power4Kids*. U.S. Department of Education. Retrieved from http://www.fcrr.org/centerResearch/centerResearchPower4Kids.htm
- Tyner, B. (2004). Small-group reading instruction: A differentiated teaching model for beginning and struggling readers. Newark, Delaware: International Reading Association.
- Vaughn, S., Wanzek, J., & Fletcher, J. M. (2007). Multiple tiers of intervention: A framework for prevention and identification of students with reading/learning disabilities. In B. M. Taylor & J. E. Ysseldyke (Eds.), *Effective instruction for struggling readers*, K–6 (pp. 173–195). New York: Teacher's College Press.

Appendix A

Teacher Professional Development Assessment Form

Early Intervention Program K–3

Please complete this assessment relative to the professional development this summer regarding the *Early Intervention Program K*-3. Respond to each item as indicated.

Cognitive and Affective Assessment

Place a number (1, 2, 3, 4, or 5) in the boxes in the table relative to your level of knowledge (cognitive) and your level of confidence (affective) regarding each of the concepts listed. Use the following scale for selecting the values of 1 to 5:

Cognitive Scale	Affective Scale
1 = very little or no knowledge	1 = very little or no confidence
to	to
5 = strong expert knowledge	5 = strong assured confidence

Concept Listing	Cognitive	Affective
Administering and interpreting assessments		
Using and incorporating tutoring into reading instruction		
Comprehending the role of differentiation in the teaching and		
learning of reading		
Using basic data analysis software for managing data in reading		
instruction		
Ways to overcome barriers to parental involvement		
Using data to drive decision-making		
Using data in attending to assignments in reading instruction		
Closing the loop between assessment and content in reading		
instruction		
Using differentiated instructional activities for engaging students in		
fluency-building skills		
Using differentiated instructional activities for engaging students in		
vocabulary-building skills		
Using differentiated instructional activities for engaging students in comprehension-building skills		
Using differentiated instructional activities for engaging students in		
phonics-building skills		
Incorporating the county literacy plan guidelines for the 90-minute		
reading block		
Using small-group instruction in the classroom		
Using strategies for promoting student engagement		

Appendix B

Excerpt From Classroom Observation Form: Vocabulary Strategies Used in Differentiated Reading

Classroom Observation Form for the Early Reading Intervention Program

	Observed	Number of	Time:
Differentiated	During	Students Involved	Number of
Reading Strategies	30-Minute Period	in Activity	Minutes
V1: Guess My Word			
V2: Flashcard Words			
V3: Sight Word Games			
V4: Picture Walk			
V5: Defining Vocabulary			
V6: Introducing Vocabulary			
V7: Revisiting Vocabulary			
V8: Summarizing Vocabulary			
V9: Illustrating Vocabulary			
V10: Other Vocabulary Activities			

The *Journal of Educational Research and Practice* provides a forum for studies and dialogue that allows readers to better develop social change in the field of education and learning. Journal content may focus on educational issues of all ages and in all settings. It also presents peer-reviewed commentaries, book reviews, interviews of prominent individuals, and additional content. The objectives: We publish research and related content that examines current relevant educational issues and processes aimed at presenting readers with knowledge and showing how that knowledge can be used to impact social change in educational or learning environments. Additional content provides an opportunity for scholarly and professional dialogue regarding that content's usefulness in expanding the body of scholarly knowledge and increasing readers' effectiveness as educators. The journal also focuses on facilitating the activities of both researcher-practitioners and practitioner-researchers, providing optimal opportunities for interdisciplinary and collaborative thought through blogging and other communications.

Walden University Publishing: http://www.publishing.waldenu.edu