



University of Nebraska at Omaha  
DigitalCommons@UNO

Educational Leadership Faculty Publications

Department of Educational Leadership

9-24-2010

# Explicitly Differentiated Eighth-Grade Reading Instruction in a Rural Middle School Seeking to Reestablish Adequate Yearly Progress Benchmarks


John W. Hill

*University of Nebraska at Omaha*, [jhill@unomaha.edu](mailto:jhill@unomaha.edu)

Sean Dunphy

*Learning Keys*, [sean.dunphy@learningkeys.org](mailto:sean.dunphy@learningkeys.org)

Follow this and additional works at: <https://digitalcommons.unomaha.edu/edadfacpub>

 Part of the [Curriculum and Instruction Commons](#), [Educational Assessment, Evaluation, and Research Commons](#), and the [Elementary and Middle and Secondary Education Administration Commons](#)

## Recommended Citation

Dunphy, S. & Hill, J. (2010). Explicitly Differentiated Eighth-Grade Reading Instruction in a Rural Middle School Seeking to Reestablish Adequate Yearly Progress Benchmarks. *International Journal of Educational Leadership Preparation*, 5(4). <http://cnx.org/content/m35682/latest/>

This Article is brought to you for free and open access by the Department of Educational Leadership at DigitalCommons@UNO. It has been accepted for inclusion in Educational Leadership Faculty Publications by an authorized administrator of DigitalCommons@UNO. For more information, please contact [unodigitalcommons@unomaha.edu](mailto:unodigitalcommons@unomaha.edu).



# EXPLICITLY DIFFERENTIATED EIGHTH-GRADE READING INSTRUCTION IN A RURAL MIDDLE SCHOOL SEEKING TO REESTABLISH ADEQUATE YEARLY PROGRESS BENCHMARKS\*

Sean Dunphy  
John Hill

This work is produced by The Connexions Project and licensed under the  
Creative Commons Attribution License †

## Abstract

The purpose of this study was to determine the effect of explicitly differentiated reading instruction on eighth-grade students' reading comprehension assessment scores and classroom reading grade scores in a rural middle school seeking to reestablish satisfactory No Child Left Behind, Adequate Yearly Progress, benchmarks. After one school year of participation in assessment-based and readiness-focused explicitly differentiated instruction, randomly assigned students across all three reading ability conditions high ( $n = 25$ ), middle ( $n = 25$ ), and low ( $n = 25$ ) had statistically significantly improved pretest-posttest reading comprehension assessment scores and classroom reading grade scores. Furthermore, statistical equipoise was observed for posttest-posttest reading comprehension assessment scores and posttest-posttest reading grade scores where higher improve score frequencies and percents compared to lose score frequencies and percents were consistently observed. While explicitly differentiated reading instruction prepared the majority of the study subjects for reading comprehension assessment improvement and classroom grade score improvement, students whose assessment scores and grade scores declined over time will require renewed initiatives.



NOTE: This manuscript has been peer-reviewed, accepted, and endorsed by the **National Council of Professors of Educational Administration (NCPEA)** as a significant contribution to the

---

\*Version 1.1: Sep 24, 2010 2:04 pm GMT-5

†<http://creativecommons.org/licenses/by/3.0/>

scholarship and practice of education administration. In addition to publication in the Connexions Content Commons, this manuscript is published in the *International Journal of Educational Leadership Preparation*,<sup>1</sup> Volume 5, Number 4 (October - December, 2010). Formatted and edited in Connexions by Theodore Creighton, Virginia Tech and Janet Tareilo, Stephen F. Austin State University.

## 1 Introduction

It is imperative that all students learn to read and leave school literate and prepared for either continued postsecondary education or successful entry into the workforce (Falk, 2001). The direct connections that exist between unemployment, lower socioeconomic status, and literacy are manifold and confirmed by a long-standing corpus of literacy research (Falk, 2001; National Center for Education Statistics, 2009; National Center for Education Statistics, 1999a; Sum, Kirsch, & Yamamoto, 2004). Students who do not gain basic literacy skills in reading and writing are simply not equipped to function in society (National Center for Education Statistics, 1999b; National Center for Education Statistics, 1992; Sum et al., 2004). Moreover, continued workplace globalization and competition for employment opportunities will place those with only basic literacy skills at an ever-increasing disadvantage (Falk, 2001; Freidman, 2005). According to the National Commission on Writing (2004), many employers are beginning to require entry-level salaried and hourly workers to pass remedial literacy courses. In short, children who become adults lacking basic literacy skills will not be able to adjust to rapidly changing work demands that place a premium on reading skills. Over the past 20 years, educational systems nationwide have focused on the goal of teaching all children to read well before leaving elementary school (Torgeson, 2000). However, despite this goal, reading achievement scores continue to fall far short with urban, suburban, and rural schools all sharing in a state of reading crisis (Bracey, 2004; Morrison, Morrison, & Bedford, 2007; Musti-Rao & Cartledge, 2007; National Center for Education Statistics, 2003; National Center for Education Statistics, 2007). Additionally, multiple studies have indicated that students in the United States consistently demonstrate a lower level of literacy skills when compared to students in other countries around the world (Bracey, 2004; Wiebenga, 2004).

Students at risk of failing to acquire the commensurate skills for successful completion of high school and subsequent entry into either post-secondary education or the workforce are most often identified as early as the first-grade as having difficulty developing early sound-symbol consonant-vowel-consonant (c-a-t, b-a-t, r-a-t) reading decoding skills (Hickman, Bartholomew, Mathwig, & Heinrich, 2008). Unfortunately, many students with identified reading delimitations require differentiated (Anderson, 2007), intensive (Denton, Fletcher, Anthony, & Francis, 2006), frequent (Ankrum & Bean, 2008), and out-loud (Cates & Rhymer, 2006; Denton et al., 2006; Lapp, Fischer, & Grant, 2008) reading instruction than is typically afforded by regular classroom reading instruction alone (Ankrum & Bean, 2008; Tobin & McInnes, 2008). It has been argued that if the aforementioned early reading interventions were implemented, 20% to 30% of students identified early on with reading skill development problems would not require later special education identification in order to receive this direct reading help (Lyon, Fletcher, Torgeson, Shaywitz, & Chhabra, 2004; Vaughn & Roberts, 2007; Vaughn et al., 2009). It is extremely important to intervene during the formative years of elementary and middle school if educators hope to reduce reading-related high school drop-out rates (Hickman et al., 2008).

## 2 Review of Literature

This study focused on a rural middle school with a School In Need of Assistance (SINA) designation for reading achievement—the real-world and real-school motivation for this study. In response to the SINA designation, teacher and administrator learning communities were formed to improve reading instruction guided and informed by the most current research and theory based best practices and standards of care. This required instructional introspection resulted in the implementation of a radically altered reading program

---

<sup>1</sup><http://www.ncpeapublications.org>

based on explicitly differentiated assessment-based and readiness-focused reading instruction for students with high, middle, and low reading ability. The goal of the yearlong change process was to improve all students' reading test scores regardless of their reading achievement status as well as improving their everyday classroom performance.

## 2.1 Early Literacy Development

During the early stages of literacy development, children who are exposed to a purposeful set of language experiences and activities focused on emergent literacy skills including phonological awareness, vocabulary, and letter-name knowledge demonstrate advanced literacy and language skill development at an earlier age (Sénéchal & Young, 2008; Whitehurst et al., 1994). Phonological awareness, or the ability to recognize the relationship between the sounds that are heard when basic letter units of a language are spoken, has been repeatedly correlated to reading ability (Wandell, Dougherty, Ben-Shachar, Deutsch, & Tsang, 2008). There are specific strategies that can be employed to facilitate phonological awareness in pre-literate children. These strategies include having an adult read to the child, which is known to influence language development and the ability to learn to read (Beals & Snow, 1994; Neuman, 1999; Watson, 2001), and engaging the child in multimodal interactions with the story, including visual, tactile-kinesthetic, auditory, and even gustatory inputs (Hill, 2000).

Reading to children at this level of development begins the process for recognizing the morphology (structure and form of words in a language), the phonology (the basic units of pronunciation called phonemes), the rules of pronunciation, the orthography of language in graphemes (the representation of language using letters) and the syllable (or basic unit of spoken language)—all required in order to achieve ultimate literacy (Snow, Burns, & Griffin, 1998). The act of reading a children's storybook to a child using different voices for each character, for example, provides the child with auditory perception input (Hill, 2000). Engaging a child in phonological awareness activities in efforts focused on kindergarten readiness, for example, may include having the child clap to the letter sounds, or phonemes, as beats of consonant-vowel-consonant (CVC) words (Hill, 2000; Joseph, 2002). By exaggerating each distinct speech sound, the child is experiencing sound elements of words and is beginning to understand the alphabetic system (Hill, 2000). In order for a child to develop phonological awareness, engagement in language and print activities such as rhyming games, letter games, and interactive reading activities that focus on the structural characteristics of language is necessary (Tunmer & Hoover, 1992). Asking a child questions or pointing to words and illustrations connects the story in the book to everyday experiences (Beals & Snow, 1994). Simply turning the pages of a story as it is read is engaging the child in shifting from the tactile-visual real world to the mental imaging of that world that is required for reading, imagining, and writing stories independently (Rosenquest, 2002). A study of the language and literacy exposure in the home environment prior to entry into school was strongly correlated to children's measured literacy skills in kindergarten. In their study, Dickinson and Tabors (2001) showed that predictors of children's vocabulary, writing concepts, letter recognition, print concepts, sounds in words, and narrative production included exposure to rare words, length and frequency of focused conversations, and interaction with literature. Stein and colleagues (1999) analyzed several basal reading programs at the first-grade level and identified explicit instruction in decoding strategies, phonemic awareness, sound/symbol relationships, oral fluency and prosody, and comprehension. Additionally, employing word boxes and word sorts has been shown to positively impact primary students' phonemic awareness, letter-sound associations, and spelling skills (Joseph, 2002). Generally, the ability to read with inflection and expression as well as the ability to comprehend reliably do not begin to emerge until sometime during the second-grade year (Chall, 1983).

## 2.2 Literacy Curriculum in the Intermediate School Years

During the intermediate school years, the ability of students to read and comprehend both fiction and non-fiction text becomes ever-increasingly required for success in school. Expanding background knowledge, deepening vocabulary, and developing meta-cognitive skills and habits in the reading process start to emerge

as ultimate goals for the learner. Making meaning of unfamiliar text to expand knowledge in a variety of content areas requires the intermediate student to comprehend text on two levels—that of literal comprehension (the literal meaning of the printed words) and of reflective understanding (i.e. “why am I reading this?”, “do I know what the author is trying to convey and why?”, and “is this similar to my personal experience?”).

The recent adoption of the Iowa Core Curriculum by the Iowa legislature (Iowa Department of Education, 2009) makes clear the purpose and focus of literacy and reading instruction at the middle level. Clearly delineated in the body of *Essential Skills and Concepts*, or overarching standards within the Iowa Core Curriculum (ICC) are expectations for students to be able to read significant books and texts each year, in both fiction and nonfiction genres. Additionally, reading skills that enhance and improve a student’s efficiency in making meaning from text, such as skimming, adjusting reading rate, re-reading, and recognizing text structure cues, are highlighted as basic skills that all students are to acquire. By the end of the middle school years, as students entering high school, silent and aloud reading fluency, including phrasing, accuracy, prosody, rhythm, and self-correction of difficulties, also comes through as paramount among the goals for reading instruction at the middle level.

**Climate of instructional debate.** A renewed sense of urgency in education for addressing achievement levels of students in the United States was initiated by the federal No Child Left Behind (NCLB) Act and the goals identified within NCLB, now written into Race to the Top funding inside the American Recovery and Reinvestment Act (2009), that includes the goal for all children to be able to read at grade level. NCLB also requires that evidence-based instruction is provided (NCLB, 2002). Findings from seminal research conducted to determine acceptable reading instruction agreed that reading instruction should be explicit and systematic and should include phonemic awareness, phonics, fluency, vocabulary, and comprehension—a nod to the influence of direct instruction (National Reading Panel, 2000; Snow et al., 1998). Additionally, both studies suggested intensive and individualized intervention to meet the needs of struggling readers.

**Differentiated instruction.** According to Tomlinson (2001) differentiated instruction is a teaching theory based on the premise that individual and diverse needs require varying instructional approaches based on students’ readiness, learning preferences, language, and background and furthermore, differentiated instruction is a teaching and learning process for teaching students with these differing abilities in the same class. Within the classroom, teachers implementing instructional models that embed differentiated instruction use a variety of strategies. Some teachers are utilizing guided reading workshops with text selected to meet both the ability levels and skill needs of students as well as facilitate an increase in the amount of daily reading (Allington, 2002). The incorporation of mini-lessons during whole-class instruction that focus on specific skills and strategies are then practiced in small groups with teacher oversight. Holding individual conferences or additional small group work once the release of responsibility in the lesson plan has shifted to the individual student can occur and has been argued as being highly effective (McIntosh, Graves, & Gersten, 2007). When reading materials are selected to correspond at once to both instructional level and content, access to vocabulary and concepts for students who may not be reading at textbook levels is facilitated. Additionally, some students are guided toward selection of reading materials based on their ability level and personal interest for independent reading, partner reading, and group discussion in differentiated instruction groups (Tobin, 2008).

### 2.3 Purpose of the Study

The purpose of this exploratory efficacy study was to determine the effect of assessment-based and readiness-focused explicitly differentiated reading instruction on eighth-grade students, with high, middle, and low reading ability, reading comprehension assessment scores and classroom reading grade scores in a school seeking to reestablish satisfactory No Child Left Behind, Adequate Yearly Progress, benchmarks. This study is of particular interest to school leaders and teachers struggling to find approaches to learning that accelerate achievement for all students in an atmosphere of high stakes testing and under a system of accountability that carries impending sanctions. Because the importance of literacy skill development cannot be overstated, all possible avenues for addressing literacy improvement were considered before explicitly differentiated instruction was implemented for all students with all levels of reading ability.

### 3 Method

The study analyzed achievement in two areas (a) standardized achievement in reading comprehension and (b) classroom reading grades for each group of eighth-grade students based on high, middle, and low reading ability who participated in the explicitly differentiated reading instruction groups.

#### 3.1 Participants

Students at the rural research school who received assessment-based and readiness-focused explicitly differentiated reading instruction and who had maintained continuous enrollment at the research school seventh-grade through ninth-grade were included in the study. The maximum accrual for this study was ( $N = 75$ ) including a group of low-achieving students randomly selected from a naturally formed group of students with spring Northwest Evaluation Association (NWEA; 2010) Reading Comprehension Measure of Academic Promise (MAP) Rasch Unit (RIT) equal-interval scores ranging from 196 to 213 ( $n = 25$ ; female  $n = 15$  and male  $n = 10$ ), a group of middle-achieving students randomly selected from a naturally formed group of students with spring NWEA Reading MAP RIT scores ranging from 214 to 225 ( $n = 25$ ; female  $n = 17$  and male  $n = 8$ ), and a group of high-achieving students randomly selected from a naturally formed group of students with spring NWEA Reading MAP RIT scores ranging from 226 to 238 ( $n = 25$ ; female  $n = 10$  and male  $n = 15$ ). The study participants had an age range of 13 years to 15 years. All participants were eighth-grade students while experiencing the explicitly differentiated reading instruction. Racial and ethnic origin of the participants was one African American student (1.33%), seven Hispanic students (9.33%), one Asian American student (1.33%), and 66 Caucasian students (88%). Nineteen of the 75 study subjects (25%) were eligible for participation in the free or reduced price lunch program. The age range, gender, racial ethnic origin, and socioeconomic status of the study participants were congruent with the research school districts demographics for eighth-grade students.

**Research design.** The three-group pretest-posttest and posttest-posttest comparative efficacy study design is displayed in the following notation:

Group 1  $X_1 O_1 Y_1 O_2$   
 Group 2  $X_1 O_1 Y_2 O_2$   
 Group 3  $X_1 O_1 Y_3 O_2$

**Group 1 = study participants #1.** Randomly selected same school eighth-grade students ( $n = 25$ ).

**Group 2 = study participants #2.** Randomly selected same school eighth-grade students ( $n = 25$ ).

**Group 3 = study participants #3.** Randomly selected same school eighth-grade students ( $n = 25$ ).

**X1 = study constant, Assessment-Based and Readiness-Focused Explicitly Differentiated Reading Instruction.**

**Y1 = study independent variable, reading ability, condition #1.** Explicitly differentiated high reading ability (HRA) instruction for students ( $n = 25$ ) with spring 2005 pretest RIT scores ranging from 226 to 241.

**Y2 = study independent variable, reading ability, condition #2.** Explicitly differentiated middle reading ability (MRA) instruction for students ( $n = 25$ ) with spring 2005 pretest RIT scores ranging from 214 to 225.

**Y3 = study independent variable, reading ability, condition #3.** Explicitly differentiated low reading ability (LRA) instruction for students ( $n = 25$ ) with spring 2005 pretest RIT scores ranging from 196 to 213.

**O1 = study pretest dependent measures.** (1) Achievement as measured by (a) the NWEA reading comprehension MAP RIT equal-interval scale measured in August 2005 and (b) reading classroom grade scores for end of the first trimester as reported by classroom teachers in November 2005.

**O2 = study posttest dependent measures.** (1) Achievement as measured by (a) the NWEA reading comprehension MAP RIT equal-interval scale measured in May 2006 and (b) reading classroom grade scores for end of third trimester as reported by classroom teachers in May 2006.

**Description of explicitly differentiated reading instruction.** Eighth-grade students who were enrolled in reading class for each given class period received responsive individualized and small group instruction differentiated explicitly based on their measured high, middle, or low reading ability levels. Students received direct instruction and skills-based instruction, depending on their readiness and preferences in learning and interests (Hall, Strangman, & Meyer, 2009), in reading decoding and reading comprehension from one of three reading endorsed teachers who had the opportunity and expectation to plan and prepare for their instruction together and were given daily collaborative time in which to do so. All students received differentiated reading instruction from all three teachers over the course of the school year, giving each teacher the opportunity to provide instruction in their areas of strength, while controlling for any possible instructor selection bias.

**Research questions.** The following eight research questions were asked and answered as part of this study comparing the impact of explicitly differentiated reading instruction on the outcomes of students with differing levels of reading ability.

1. Do eighth-grade students with HRA who participated in explicitly differentiated reading instruction lose, maintain, or improve beginning pretest eighth-grade compared to ending posttest eighth-grade NWEA MAP RIT reading comprehension assessment scores?

2. Do eighth-grade students with MRA who participated in explicitly differentiated reading instruction lose, maintain, or improve beginning pretest eighth-grade compared to ending posttest eighth-grade NWEA MAP RIT reading comprehension assessment scores?

3. Do eighth-grade students with LRA who participated in explicitly differentiated reading instruction lose, maintain, or improve beginning pretest eighth-grade compared to ending posttest eighth-grade NWEA MAP RIT reading comprehension assessment scores?

4. Do eighth-grade students who participated in explicitly differentiated reading instruction have observed verses expected posttest reading comprehension NWEA MAP RIT lose or improve frequencies that are congruent or different for students with high, medium, and low reading ability?

5. Do eighth-grade students with HRA who participated in explicitly differentiated reading instruction lose, maintain, or improve first trimester pretest eighth-grade compared to third trimester posttest eighth-grade reading grade scores?

6. Do eighth-grade students with MRA who participated in explicitly differentiated reading instruction lose, maintain, or improve first trimester pretest eighth-grade compared to third trimester posttest eighth-grade reading grade scores?

7. Do eighth-grade students with LRA who participated in explicitly differentiated reading instruction lose, maintain, or improve first trimester pretest eighth-grade compared to third trimester posttest eighth-grade reading grade scores?

8. Do eighth-grade students who participated in explicitly differentiated reading instruction have observed verses expected posttest reading grade score lose or improve frequencies that are congruent or different for students with high, medium, and low reading ability?

**Assumptions of the study.** The study has several strong features including: (a) explicitly differentiated reading instruction was based on best practices teaching theory for reading instruction, (b) a school-wide learning community composed of teachers and administrators was responsible for development of the intervention, (c) the intervention directly addressed a clear and present concern for meeting the needs of students as they prepare for successful transition to high school and beyond, (d) trained and experienced teachers in key leadership and instructional positions provided the differentiated instruction, (e) all subjects of the study were enrolled in the same school district for the duration of the intervention, as well as for one year prior and one year following the intervention year, (f) all subjects were exposed to the instructional practices of each of the teachers involved in the intervention on a rotating basis, (g) the study subjects were randomly selected from all students involved in the intervention and who met the established criteria, and (h) all students were assessed using routinely administered district-approved norm-referenced standardized tests and district-approved classroom grading practices.

**Limitations of the study.** Some study limitations are also important to note. This study was restricted to eighth-grade students ( $N = 75$ ) experiencing reading instruction in explicitly differentiated reading classes

within the research school. Participants of the study were randomly selected from groups that were determined based upon student spring 2005 NWEA MAP Reading assessment RIT scores. Potential subject selection bias and first year implementation of the intervention may have limited both the interpretability and generalizability of the study results.

**Data collection procedure.** All student data was retrospectively analyzed using archived school information. Non-coded numbers were used to display individual de-identify data. The research was conducted in the public school setting through normal educational practices. The study procedure did not interfere in any way with the normal educational practices of the public school and did not involve coercion or discomfort of any kind. Individual student achievement and demographic data was de-identified after all information was linked and the data set completed. Participating school district and University of Nebraska Medical Center/University of Nebraska at Omaha Joint Institutional Review Board for the Protection of Human Subjects approval was granted for the study before data were analyzed.

## 4 Results

The following research questions were used to analyze the effect of explicitly differentiated reading instruction on students' assessment and grade score outcomes.

### 4.1 Research Question #1

The first pretest-posttest hypothesis was tested using the dependent  $t$  test. The null hypothesis was rejected for the HRA students' NWEA reading comprehension pretest-posttest comparisons following participation in explicitly differentiated reading instruction. The pretest NWEA reading comprehension score for the HRA students ( $M = 231.40$ ,  $SD = 43.25$ ) compared to the posttest NWEA reading comprehension score ( $M = 235.72$ ,  $SD = 54.13$ ) was statistically significantly different in the direction of posttest NWEA reading comprehension score improvement,  $t(24) = 3.29$ ,  $p = .002$  (one-tailed),  $d = 0.77$ .

### 4.2 Research Question #2

The second pretest-posttest hypothesis was tested using the dependent  $t$  test. The null hypothesis was rejected for the MRA students' NWEA reading comprehension pretest-posttest comparisons following participation in explicitly differentiated reading instruction. The pretest NWEA reading comprehension score for the MRA students ( $M = 216.92$ ,  $SD = 45.99$ ) compared to the posttest NWEA reading comprehension score ( $M = 224.28$ ,  $SD = 58.04$ ) was statistically significantly different in the direction of posttest NWEA reading comprehension score improvement,  $t(24) = 5.46$ ,  $p = .0001$  (one-tailed),  $d = 1.02$ .

### 4.3 Research Question #3

The third pretest-posttest hypothesis was tested using the dependent  $t$  test. The null hypothesis was rejected for the LRA students' NWEA reading comprehension pretest-posttest comparisons following participation in explicitly differentiated reading instruction. The pretest NWEA reading comprehension score for the LRA students ( $M = 207.08$ ,  $SD = 55.08$ ) compared to the posttest NWEA reading comprehension score ( $M = 212.00$ ,  $SD = 81.00$ ) was statistically significantly different in the direction of posttest NWEA reading comprehension score improvement,  $t(24) = 2.58$ ,  $p = .01$  (one-tailed),  $d = 0.59$ .

### 4.4 Research Question #4

The fourth hypothesis was tested using chi-square ( $X^2$ ). High, middle, and low reading ability students who participated in explicitly differentiated reading instruction NWEA posttest reading comprehension improve or lose score frequencies and percents were tested. The result of  $X^2$  for the posttest comparison of NWEA reading comprehension scores was not statistically different ( $X^2(2, N = 75) = 1.10$ ,  $ns$ ) so the null hypothesis of no difference or congruence for the NWEA reading comprehension scores was not rejected.



#### 4.5 Research Question #5

The fifth pretest-posttest hypothesis was tested using the dependent  $t$  test. The null hypothesis was rejected for the HRA students' reading grades pretest-posttest comparisons following participation in explicitly differentiated reading instruction. The pretest reading grades for the HRA students ( $M = 3.21$ ,  $SD = 1.11$ ) compared to the posttest reading grades ( $M = 3.72$ ,  $SD = 0.25$ ) was statistically significantly different in the direction of posttest reading grades improvement,  $t(24) = 3.88$ ,  $p = .001$  (one-tailed),  $d = 0.65$ .

#### 4.6 Research Question #6

The sixth pretest-posttest hypothesis was tested using the dependent  $t$  test. The null hypothesis was rejected for the MRA students' reading grades pretest-posttest comparisons following participation in explicitly differentiated reading instruction. The pretest reading grades for the MRA students ( $M = 2.40$ ,  $SD = 1.06$ ) compared to the posttest reading grades ( $M = 3.27$ ,  $SD = 0.43$ ) was statistically significantly different in the direction of posttest reading grades improvement,  $t(24) = 5.17$ ,  $p = .001$  (one-tailed),  $d = 1.03$ .

#### 4.7 Research Question #7

The seventh pretest-posttest hypothesis was tested using the dependent  $t$  test. The null hypothesis was rejected for the LRA students' reading grades pretest-posttest comparisons following participation in explicitly differentiated reading instruction. The pretest reading grades for the LRA students ( $M = 1.93$ ,  $SD = 1.01$ ) compared to the posttest reading grades ( $M = 2.44$ ,  $SD = 0.98$ ) was statistically significantly different in the direction of posttest reading grades improvement,  $t(24) = 2.41$ ,  $p = .01$  (one-tailed),  $d = 0.51$ .

#### 4.8 Research Question #8

The eighth hypothesis was tested using chi-square ( $X^2$ ). High, middle, and low reading ability students who participated in explicitly differentiated reading instruction posttest reading grade improve or lose score frequencies and percents were tested. The result of  $X^2$  for the posttest comparison of reading grades improve or lose score frequencies and percents was not statistically different ( $X^2(2, N = 75) = 5.97$ ,  $ns$ ) so the null hypothesis of no difference or congruence for the posttest comparison of reading grades was not rejected.

## 5 Conclusions

Based on the results the following conclusions may be drawn from the study for each of the eight research questions guiding the study.

### 5.1 Research Question #1 Conclusion

Pretest-posttest results indicated beginning eighth-grade pretest NWEA reading comprehension RIT scores compared to ending eighth-grade posttest NWEA reading comprehension RIT scores for HRA students who participated in explicitly differentiated reading instruction were statistically significantly different in the direction of posttest score improvement. Comparing HRA students' posttest NWEA reading comprehension RIT scores with other derived achievement scores puts their performance in perspective (Salvia & Ysseldyke, 2004). A posttest reading comprehension RIT score mean of 235.72 is congruent with a Percentile Rank of 85, a Stanine Score of 7 (the lowest stanine of the above average range), and an achievement qualitative description of above average. The HRA students' higher posttest NWEA reading RIT score (5.42) was measured in the above average range. The direction of above average range higher posttest reading comprehension RIT score change from pretest to posttest suggests the clearest evidence that the explicitly differentiated reading instruction resulted in skill development and test score improvement for HRA students.

## 5.2 Research Question #2 Conclusion

Pretest-posttest results indicated beginning eighth-grade pretest NWEA reading comprehension RIT scores compared to ending eighth-grade posttest NWEA reading comprehension RIT scores for MRA students who participated in explicitly differentiated reading instruction were statistically significantly different in the direction of posttest score improvement. Comparing MRA students' posttest NWEA reading RIT scores with other derived achievement scores puts their performance in perspective. A posttest reading RIT score mean of 224.28 is congruent with a Percentile Rank of 55, a Stanine Score of 5 (the middle stanine of the average range), and an achievement qualitative description of average. The MRA students' higher posttest NWEA reading comprehension RIT score (7.36) was measured within the average range. The direction of average range higher posttest reading comprehension RIT score change from pretest to posttest suggests the clearest evidence that the explicitly differentiated reading instruction resulted in skill development and test score improvement for MRA students.

## 5.3 Research Question #3 Conclusion

Pretest-posttest results indicated beginning eighth-grade pretest NWEA reading comprehension RIT scores compared to ending eighth-grade posttest NWEA reading comprehension RIT scores for LRA students who participated in explicitly differentiated reading instruction were statistically significantly different in the direction of posttest score improvement. Comparing LRA students' posttest NWEA reading comprehension RIT scores with other derived achievement scores puts their performance in perspective. A posttest reading comprehension RIT score mean of 212.00 is congruent with a Percentile Rank of 23, a Stanine Score of 4 (the lowest stanine of the average range), and an achievement qualitative description of average. The LRA students' higher posttest NWEA reading comprehension RIT score (4.92) was measured within the average range. The direction of average range higher posttest reading RIT score change from pretest to posttest suggests the clearest evidence that the explicitly differentiated reading instruction resulted in skill development and test score improvement for LRA students.

## 5.4 Research Question #4 Conclusion

Posttest compared to posttest findings indicate that the HRA vs. MRA vs. LRA students were not statistically different in their improve and lose NWEA posttest reading comprehension score frequencies and percents following explicitly differentiated reading instruction. Frequencies and percents for HRA students' NWEA posttest reading comprehension score change was improve  $n = 20$  (80%) and lose  $n = 5$  (20%). Frequencies and percents for MRA students' NWEA posttest reading comprehension score change was improve  $n = 21$  (84%) and lose  $n = 4$  (16%), while frequencies and percents for LRA students' NWEA posttest reading comprehension score change was improve  $n = 18$  (72%) and lose  $n = 7$  (28%). Given the statistical equipoise observed it may be said that the explicitly differentiated reading instruction equally prepared students for posttest NWEA reading comprehension assessments particularly since the HRA, MRA, and LRA students all posted higher improve score percents compared to lose score percents.

## 5.5 Research Question #5 Conclusion

Pretest-posttest results indicated beginning eighth-grade pretest reading grade scores compared to ending eighth-grade posttest reading grade scores for HRA students who participated in explicitly differentiated reading instruction were statistically significantly different in the direction of posttest reading grades improvement. Translating HRA students' posttest reading grades to research school district letter grades puts their performance in perspective. A posttest reading grade mean of 3.72 equates to a letter grade of "A" and an achievement qualitative description of above average. The HRA students' higher posttest reading grade score (0.51) was measured in the above average range. The direction of above average range higher posttest reading grade improvement indicated that the differentiated instruction resulted in statistically significant reading skills improvement as measured at the classroom level. This finding suggests that the explicitly

differentiated reading instruction resulted in significantly improved reading classroom performance for HRA students.

### **5.6 Research Question #6 Conclusion**

Pretest-posttest results indicated beginning eighth-grade pretest reading grade scores compared to ending eighth-grade posttest reading grade scores for MRA students who participated in explicitly differentiated reading instruction were statistically significantly different in the direction of posttest reading grades improvement. Translating MRA students' posttest reading grade scores to research school district letter grades puts their performance in perspective. A posttest reading grade mean score of 3.27 equates to a letter grade of "B" and an achievement qualitative description of above average. The MRA students' higher posttest reading grade score (0.87) was measured in the above average range. The direction of above average range higher posttest reading grade improvement indicated that the differentiated instruction resulted in statistically significant reading skills improvement as measured at the classroom level. This finding suggests that the explicitly differentiated reading instruction resulted in significantly improved reading classroom performance for MRA students.

### **5.7 Research Question #7 Conclusion**

Pretest-posttest results indicated beginning eighth-grade pretest reading grade scores compared to ending eighth-grade posttest reading grade scores for LRA students who participated in explicitly differentiated reading instruction were statistically significantly different in the direction of posttest reading grade score improvement. Translating LRA students' posttest reading grade scores to research school district letter grades puts their performance in perspective. A posttest reading grade mean score of 2.44 equates to a letter grade of "C+" and an achievement qualitative description of average. The LRA students' higher posttest reading grade score (0.87) was measured in the average range. The direction of average range higher posttest reading grade score improvement indicated that the differentiated instruction resulted in statistically significant reading skills improvement as measured at the classroom level. This finding suggests that the explicitly differentiated reading instruction resulted in significantly improved reading classroom performance for LRA students.

### **5.8 Research Question #8 Conclusion**

Posttest compared to posttest findings indicate that the HRA vs. MRA vs. LRA students were not were not statistically different in their improve and lose posttest reading grade score frequencies and percents following explicitly differentiated reading instruction. Frequencies and percents for HRA students' posttest reading grade score change was improve  $n = 25$  (100%) and lose  $n = 0$  (0%). Frequencies and percents for MRA students' posttest reading grade score change was improve  $n = 23$  (92%) and lose  $n = 2$  (8%), while frequencies and percents for LRA students' posttest reading grades change was improve  $n = 20$  (80%) and lose  $n = 5$  (20%). Given the statistical equipoise observed it may be said that the explicitly differentiated reading instruction equally prepared students for posttest classroom reading grade improvement particularly since the HRA, MRA, and LRA groups all posted higher improve score percents compared to lose score percents.

## **6 Discussion**

The results of this study support student continued participation in assessment-based and readiness-focused explicitly differentiated reading instruction. Because students in all three reading ability conditions obtained above average to average achievement test scores with commensurate classroom grade performance the results suggest continued school wide implementation of explicitly differentiated reading instruction. Faced with the imperative to acquire literacy skills adequate to meet the academic demands of high school and post-secondary life as either a college student or a working adult, learning must be accelerated for all

segments of the student population (National Center for Education Statistics, 1999b; National Center for Education Statistics, 1992; Sum et al., 2004). Additionally, this acceleration is fundamental to the school's ability to meet NCLB requirements and attain levels of student achievement commensurate with legislative expectations (Hoff, 2008; NCLB Act, 2002).

Researchers have clearly developed answers for pedagogical questions surrounding which instructional components enable and accelerate the development of critical reading skills that include differentiated instruction that is individualized, intensive, and frequent (Ankrum & Bean, 2008; Anderson, 2007; Cates & Rhymer, 2006; Denton et al., 2006; Lapp et al., 2008). Moreover, practitioners are cautioned that traditional classroom instruction may not provide enough of these components to accelerate learning and skills acquisition (Ankrum & Bean, 2008; Tobin & McInnes, 2008). The results of this study suggest that when these critical components are present in the daily educational routine, supported by the student schedule and teacher roster assignment, achievement can be significantly positively influenced. Through deep understanding of the language acquisition process, and the application of instructional strategies that are delivered to students at their instructional readiness level despite their age or grade, practitioners increase the likelihood of affecting accelerated skill acquisition and ultimate literacy (Snow et al., 1998).

## 7 Summary

Building leaders and teachers used pretest data to plan readiness-focused differentiated reading experiences for all students. By measuring the range of abilities within a given classroom during a given class period, teachers were able to focus instruction and differentiate in meaningful and individualized ways for all students. Teachers and administrators worked together to make placement decisions, monitor achievement progress, and develop lessons. Teachers were given daily cooperative planning time to coordinate and collaborate with one another about students, pedagogy, and resources. Teachers rotated groups at each trimester to provide instruction that leveraged their individual teaching skills and experience.

In the main, the three key theoretical elements of differentiation in the classroom including content (what a teacher plans to teach), process (how a teacher plans instruction for the whole class, groups, or pairs), and assessment (content and products) decisions were all deliberately addressed in planning the instructional components of the assessment-based and readiness-focused explicitly differentiated reading instruction (Tomlinson, 2001). With regard to curriculum, the goals for students exiting the middle school, as outlined by the state curriculum, included silent and aloud reading fluency, including phrasing, accuracy, prosody, rhythm, and self-correction of difficulties, and comprehension (Iowa Department of Education, 2009). As a result, these goals are paramount for reading instruction at the middle school level. A review of seminal research clearly indicated that reading instruction should be explicit and systematic and should include components that recognize the influence of direct instruction, and further suggested that intensive and individualized differentiated intervention is necessary to meet the needs of struggling readers (National Reading Panel, 2000; Snow et al., 1998). Moreover, because middle school students benefit from classrooms that acknowledge environmental elements including security, affiliation, support, purpose, affirmation, and affinity, this particular design was a deliberate attempt to combine individualized instruction with methodologies that included small group and cooperative learning experiences (Tomlinson & Doughty, 2006).

In closing we assert that students who did not respond positively to the initial school year of explicitly differentiated reading instruction continue receiving reading instruction informed by curricula goals, methods, assessments, and materials that continuously adapt to them (Rose & Meyer, 2002). We further posit that reestablishing adequate yearly progress benchmarks that satisfy both the letter and spirit of the No Child Left Behind legislation will only be realized when *all* students are truly proficient readers. We have much to do.

## 8 References

Allington, R. L. (2002). You can't learn much from books you can't read. *Educational Leadership*, 60(3), 16-19.

- American Recovery and Reinvestment Act of 2009, Pub. L. 111-5, §123, Stat. 155. (2009).
- Anderson, K. M. (2007). Differentiating instruction to include all students. *Preventing School Failure*, 51(3), 49-54.
- Ankrum, J. W., & Bean, R. M. (2008). Differentiated reading instruction: What and how. *Reading Horizons*, 48(2), 133-146.
- Beals, D. E., & Snow, C. E. (1994). Thunder is when the angels are upstairs bowling: Narratives and explanations at the dinner table. *Journal of Narrative and Life History*, 4(4), 331-352.
- Bracey, G. W. (2004). *Setting the record straight: Responses to misconceptions about public education in the U. S.* Portsmouth, NH: Heinemann.
- Cates, G. L., & Rhymer, K. N. (2006). Effects of explicit timing on elementary students' oral reading rates of word phrases. *Reading Improvement*, 43(3), 148-156.
- Chall, J. (1983). *Learning to read: The great debate*. New York, NY: McGraw-Hill.
- Denton, C. A., Fletcher, J. M., Anthony, J. L., & Francis, D. J. (2006). An evaluation of intensive intervention for students with persistent reading difficulties. *Journal of Learning Disabilities*, 39(5), 447-466.
- Dickinson, D. K. (Ed.), & Tabors, P. O. (Ed.). (2001). *Beginning literacy with language: Young children learning at home and school*. Baltimore, MD: Brookes Publishing.
- Falk, I. (2001). The future of work and the work of the future. *Journal of Adolescent and Adult Literacy*, 44(6), 566-571.
- Freidman, T. (2005). *The world is flat*. New York, NY: Farrar, Strauss, & Giroux.
- Hall, T., Strangman, N., & Meyer, A. (2009). *Differentiated instruction and implications for UDL implementation*. National Center on Accessing the General Curriculum. US Department of Education, Office of Special Education Programs: Washington, DC.
- Hickman, G. P., Bartholomew, M., Mathwig, J., & Heinrich, R. S. (2008). Differential developmental pathways of high school dropouts and graduates. *The Journal of Educational Research*, 102(1), 3-14.
- Hill, J. W. (2000). Readiness success for preschool children. *LDA Nebraska Newsbriefs: Vol. Fall*. Omaha, NE: Learning Disabilities Association of Nebraska.
- Hoff, D. J. (2008). NCLB debate at the sidelines: New president to shape law's next phase. *Education Week*, 28(6), 1, 24.
- Iowa Department of Education. (2009). *Iowa Core Curriculum*. Iowa Code Supplement 2007, Section 256.7, subsections 26 and 28.
- Joseph, L. M. (2002). Facilitating word recognition and spelling using word boxes and word sort phonics procedures. *The School Psychology Review*, 31(1), 122-9.
- Lapp, D., Fischer, D., & Grant, M. (2008). You can read this text-I'll show you how: Interactive comprehension instruction. *Journal of Adolescent and Adult Literacy*, 51(5), 372-383. doi: 10.1598/JAAL51.5.1
- Lyon, G. R., Fletcher, J. M., Torgeson, J. K., Shaywitz, S. E., & Chhabra, V. (2004). Preventing and remediating reading failure: A response to Allington. *Educational Leadership*, 61(6), 86-88.
- McIntosh, A. S., Graves, A., & Gersten, R. (2007). The effects of response to intervention on literacy development in multiple-language settings. *Learning Disability Quarterly*, 30(3), 197-212.
- Morrison, H. E., Morrison, J. D., & Bedford, S. (2007). Beyond numbers: Making AYP one student at a time. *Principal Leadership (Middle School Edition)*, 7(6), 26-31.
- Musti-Rao, S., & Cartledge, G. (2007). Effects of a supplemental early reading intervention with at-risk urban learners. *Topics in Early Childhood Special Education*, 27(2), 70-85.
- National Center for Education Statistics. (1992). *1992 National Adult Literacy Survey (NCES 1999-009)*. Institute of Education Sciences, U.S. Department of Education, Washington, D.C.
- National Center for Education Statistics. (1999a). *Literacy in the Labor Force: Results from the National Adult Literacy Survey (NCES 1999-470)*. Institute of Education Sciences, U.S. Department of Education, Washington, D.C.
- National Center for Education Statistics. (1999b). *National Assessment of Educational Progress 1998 Reading State Reports (NCES 1999-460)*. Institute of Education Sciences, U.S. Department of Education, Washington, D.C.

National Center for Education Statistics. (2003). *Reading—Young Children’s Achievement and Classroom Experiences: Findings from the Condition of Education 2003* (NCES 2003-070). Institute of Education Sciences, U.S. Department of Education, Washington, D.C.

National Center for Education Statistics. (2007). *The Nation’s Report Card: Reading 2007: National Assessment of Educational Progress at Grades 4 and 8* (NCES 2007-496). Institute of Education Sciences, U.S. Department of Education, Washington, D.C.

National Center for Education Statistics. (2009). **The Nation’s Report Card: Reading 2009** (NCES 2010-458). Institute of Education Sciences, U.S. Department of Education, Washington, D.C.

National Commission on Writing. (2004). *Writing: A ticket to work... Or a ticket out*. Retrieved December 12, 2009, from [www.writingcommission.org/prod\\_downloads/writingcom/writing-ticket-to-work.pdf](http://www.writingcommission.org/prod_downloads/writingcom/writing-ticket-to-work.pdf)

National Reading Panel. (2000). *Teaching children to read*. Washington, DC: National Institute of Child Health and Human Development.

Neuman, S. B. (1999). Books make a difference: A study of access to literacy. *Reading Research Quarterly*, 34(3), 286-311.

No Child Left Behind (NCLB) Act of 2001, Pub. L. No. 107-110, §115, Stat. 1425. (2002).

Northwest Evaluation Association. (2010). *Measure of Academic Progress*. Northwest Evaluation Association, Lake Oswego, OR.

Rose, D., & Meyer, A. (2002). *Teaching every student in the digital age: Universal design for learning*. Alexandria, VA: ASCD.

Rosenquest, B. B. (2002). Literacy-based planning and pedagogy that supports toddler language development. *Early Childhood Education Journal*, 29(4), 241-249.

Salvia, J., & Ysseldyke, J. E. (2004). *Assessment in special and inclusive education*. Boston, MA: Houghton Mifflin.

Sénéchal, M., & Young, L. (2008). The effect of family literacy interventions on children’s acquisition of reading from kindergarten to grade 3: A meta-analytic review. *Review of Educational Research*, 78(4), 880-907. doi:10.3102/00346543308320319

Snow, C. E., Burns, M. S., & Griffin, P. (1998). *Preventing Reading Difficulties in Young Children*. Washington, D.C.: National Academy Press.

Stein, M., Johnson, B., & Gutlohn, L. (1999). Analyzing beginning reading programs: The relationship between decoding instruction and text. *Remedial and Special Education*, 20(5), 275-287.

Sum, A., Kirsch, I., & Yamamoto, K. (2004). *Pathways to labor market success: The literacy proficiency of U.S. adults*. Retrieved from Educational Testing Service website: <http://www.ets.org/Media/Research/pdf/PICADULTLIT>

Tobin, R., & McInnes, A. (2008). Accommodating differences: Variations in differentiated literacy instruction in grade 2/3 classrooms. *Literacy*, 42(1), 3-9.

Tobin, R. (2008). Conundrums in the differentiated literacy classroom. *Reading Improvement*, 45(4), 159-169.

Tomlinson, C. A. (2001). *How to differentiate in mixed-ability classrooms*. (2nd Ed.) Alexandria, VA: ASCD.

Tomlinson, C. A., & Doughty, K. (2006). *Smart in the middle grades: Classrooms that work for bright middle schoolers*. Westerville, OH: National Middle Level Association.

Torgeson, J. K. (2000). Individual differences in response to early interventions in reading: The lingering problem of treatment resistors. *Learning Disabilities Research and Practice*, 15(1), 55-64.

Tunmer, W. A., & Hoover, W. E. (1992). Cognitive and linguistic factors in learning to read. In P. B. Gough, L. C. Ehri & R. Treiman (Eds.), *Reading Acquisition* (pp. 175-214). Hillsdale, NJ, England: Laurence Erlbaum Associates, Inc.

Vaughn, S., & Roberts, G. (2007). Secondary interventions in reading: Providing additional instruction for students at risk. *Teaching Exceptional Children*, 39(5), 40-46.

Vaughn, S., Wanzek, J., Murray, C. S., Scammacca, N., Linan-Thompson, S., & Woodruff, A. L. (2009). Response to early reading intervention: Examining higher and lower responders. *Exceptional Children*, 75(2), 165-183.

Wandell, B., Dougherty, R., Ben-Shachar, M., Deutsch, G., & Tsang, J. (2008). Training in the arts, reading, and brain imaging. In C. Asbury & B. Rich (Eds.), *Learning, Arts, and the Brain: The Dana Consortium Report on Arts and Cognition* (pp. 51-60). New York, NY: Dana Press.

Watson, R. (2001). Literacy and oral language: Implications for early literacy acquisition. In S. B. Neuman & D. K. Dickinson (Eds.), *Handbook of Early Literacy Research* (pp. 53-53). New York, NY: Guilford Press.

Whitehurst, G. J., Epstein, J. N., Angell, A. L., Payne, A. C., Crone D. A., & Fischel, J. E. (1994). Outcomes in an emergent literacy intervention in Head Start. *Journal of Educational Psychology*, 86(4), 542-555.

Wiebenga, B. (2004). Measuring literacy in thirty-five countries. *Logos*, 15(1), 37-42.