

## RESEARCH ARTICLE

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# Evaluation of the Effects of *Read it Once Again* across Two Groups of Students

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The purpose of this study was to evaluate the effectiveness of a preschool early literacy curriculum (*Read It Once Again*) across two groups of students. Participants were preschool children with disabilities in self-contained classrooms and children at risk for disabilities served in state funded prekindergarten programs. Teachers in the intervention classrooms implemented *Read It Once Again* instruction in small groups on a daily basis. Teachers in comparison classrooms implemented the ongoing preschool curriculum as a “business-as-usual” no-intervention condition. There were no pretest group differences on the Peabody Picture Vocabulary Test and the Preschool Language Scales for both groups of children; however, there were statistically significant effects on picture naming and rhyming progress-monitoring measures for preschoolers with disabilities who received the intervention. These results suggest that *Read It Once Again* may be effective for improving early literacy skills of preschool children with or at risk for significant early learning problems.

*Keywords:* Early literacy, at-risk early learners, preschoolers with disabilities, expressive and auditory comprehension, rapid naming, rhyming

Young children who fail to acquire critical early literacy skills are at increased risk for academic and social problems (Dennis & Horn, 2011; Hay & Fielding-Barnsley, 2009; Massetti & Bracken, 2010; Missall, McConnell, & Cadigan, 2006). Developing the prerequisite skills to become strong and capable readers, however, does not come naturally or easily to many children. Concerns regarding children entering kindergarten without the prerequisite skills critical for

success in school continue to increase (Howes et al., 2008; Zill & West, 2001). The detrimental effects of beginning school without foundational skills in early literacy are well documented. For example, researchers have found that children who begin school behind their peers in early literacy development experience cumulative negative effects, are not likely to catch up (Al Otaiba, Kosanovich-Grek, Torgensen, Hassier, & Wahl, 2005; Benner, Nelson, Ralston, & Mooney, 2010; Berg & Stegeman, 2003; Fuchs et al., 2001; Honig, 1997; Mathes et al., 2003; Puranik, Petscher, Al Otaiba, Catts, & Lonigan, 2008; Torgensen, 1998) and are at higher risk for future reading difficulties (Justice, Skibbe, McGinty, Piasta, & Petrill, 2011; Mashburn, Justice, Downer, & Pianta, 2009; Mathes et al., 2003; Whitehurst & Lonigan, 1998). Researchers have also found that early language skills are closely related to literacy development. For example, Mashburn et al. (2009) found that children who demonstrate early delays in language development can often experience later difficulties in reading achievement, specifically in reading comprehension in the later elementary-school years. This is particularly true for young children with disabilities and those who are at an increased risk for future reading failure (Bashir & Scavuzzo, 1992; Isakson, Marcgand-Martella, & Martella, 2011; Mashburn et al., 2009; Missall et al., 2006; Puranik et al., 2008; Wilcox, Gray, Guimond, & Lafferty, 2011).

In contrast to the difficulties that children may experience due to deficits in early literacy and language skills, researchers have also described how the acquisition of these skills can promote positive outcomes in young children beginning school. The development of early reading skills before entering school appears to be a critical factor for success in kindergarten (Missall et al., 2006; National Early Literacy Panel, 2009), the transition into literacy (Barrett & Hammond, 2008; Hay & Fielding-Barnsley, 2009), and later school success (Barrett & Hammond, 2008; Diamond, Gerde, & Powell, 2008; Hay & Fielding-Barnsley, 2009; Roskos & Vukelich, 2006). A strong foundation in early literacy skills can better prepare children to benefit from formal reading instruction (Justice, Invernizzi, Geller, Sullivan, & Welsch, 2005; Justice et al., 2011; Wilcox et al., 2011). In addition to academic benefits, the acquisition of language and early literacy skills can also have a positive influence on the social development of young children (Elias, Hay, Homel, & Frieberg, 2006; Paul, 2007). Hay and Fielding-Barnsley (2009) found that early alphabetical awareness, receptive and expressive language skills, and behavior in class were highly related.

These positive effects are not limited, however, to the initial entry into school. Possessing early literacy skills when entering school also appears to be related to future academic achievement (e.g., Zimmerman, Rodriguez, Rewey, & Heidemann, 2008). The International Reading Association (IRA), the National Association for the Education of Young Children (NAEYC), and the National Early Literacy Panel (NELP) agree that students in preschool and kindergarten must attain age-appropriate competence in oral language, phonemic awareness, alphabet knowledge, and print concepts to promote later academic achievement (IRA & NAEYC, 1998; NELP, 2009). Strong oral language and emergent literacy skills can lead to advantages in reading, writing, and spelling (DeBaryshe & Gorecki, 2007). Specifically, concepts about print (Justice & Ezell, 2001; Justice & Kaderavek, 2004; NELP, 2009; Scarborough, 2005), expressive vocabulary (Morrow & Tracey, 2007; Scarborough, 2005), receptive language and story recall (Scarborough, 2005), phonological awareness (Justice & Ezell, 2001; Justice & Kaderavek, 2004; NELP, 2009; Scarborough, 2005), and alphabet knowledge (NELP, 2009; Scarborough, 2005; Whitehurst & Lonigan, 2001) appear to predict early literacy development and achievement in later school years (Scarborough, 2005). Due to

the significant effects of acquiring prerequisite skills, the development of early literacy and language skills should be a primary component of the early childhood curriculum.

The purpose of this study was to assess the effects of an early literacy curriculum (*Read It Once Again*) on skills of students at risk for failure and preschool students with disabilities in public elementary schools. Teachers who have implemented *Read It Once Again* have been positive with regard to its usefulness (<http://www.readitonceagain.com/testimonials.html>), but only anecdotal data on its effectiveness are available. We addressed the following research question: To what extent does preschool teachers' use of the *Read It Once Again* curriculum increase young children's early literacy skills?

## METHOD

### Participants and Setting

We completed our study with two groups of students in the southeastern United States. Sixty-five participants identified as at-risk received instruction in three half-day (morning and afternoon) 4-K classrooms located within two local public elementary schools. We also included 85 preschool children with disabilities (PCD) who attended five different preschool programs. The students were considered at-risk or had been previously identified as eligible for special education services according to the accepted state criteria (<http://ed.sc.gov/agency/Standards-and-Learning/Academic-Standards/old/ece/programs/Mostatrisk/Mostatrisk.html>). A purposeful sampling procedure was used to select the classrooms. First, we specified the need for classrooms of PreK and PCD children. We then recruited teachers in the community who had those students in their classroom. The teachers had previously worked with the researchers as supervisors for preservice students who attended the local university's early childhood special education teacher preparation program.

Participants identified as at-risk ( $n = 65$ ) received instruction in three half-day (morning and afternoon) 4-K classrooms located within two local public elementary schools. The average age of the children at the beginning of the study was 4 years 5 months (range = 4 years 0 months to 5 years 0 months); more than half of the students (56%) were girls; most were from Caucasian (62%) ethnic backgrounds (15% African American, and 23% other); and, 17% had a language other than English spoken in the home. The difference in the age of the participants in the comparison ( $M = 4.57$ ,  $SD = .48$ ) and intervention ( $M = 4.52$ ,  $SD = .47$ ) group was not statistically significant,  $t = 0.45$ ,  $df = 63$ ,  $p > .01$ , 95%  $CI = -.19$  -.30. The distribution was similar across groups for gender ( $X^2(1) = 5.61$ ,  $p > .01$ ), minority status ( $X^2(1) = 2.16$ ,  $p > .01$ ), and Hispanic ethnicity ( $X^2(1) = 3.08$ ,  $p > .01$ ). African American ethnicity ( $X^2(2) = 16.31$ ,  $p < .001$ ) and eligibility for federal free or reduced lunch programs ( $X^2(1) = 26.68$ ,  $p < .01$ ) were overrepresented in the intervention group.

Participants identified with disabilities ( $n = 85$ ) received instruction in nine half-day self-contained classrooms; eight located in center-based programs and one located within a local elementary school. The average age of the children at the beginning of the study was 4 years 6 months (range = 3 years 0 months to 6 years 0 months); most (71%) were boys; most were from Caucasian (61%) ethnic backgrounds (25% African American, and 14% other); and, 12% had a language other than English spoken in the home. The difference in the age of the participants in the comparison ( $M = 4.91$ ,  $SD = .73$ ) and intervention ( $M = 4.30$ ,  $SD = .84$ ) group was

statistically significant,  $t = 3.40$ ,  $df = 80$ ,  $p < .01$ , 95%  $CI = .25$  -.96. The distribution was similar across groups for gender ( $X^2(1) = 6.00$ ,  $p > .01$ ), ethnicity ( $X^2(2) = 7.24$ ,  $p > .01$ ), and Hispanic ethnicity ( $X^2(1) = 4.68$ ,  $p > .01$ ). Minority status ( $X^2(1) = 6.79$ ,  $p < .001$ ) and eligibility for federal free or reduced lunch programs ( $X^2(1) = 8.37$ ,  $p < .01$ ) were overrepresented in the intervention group. Disability categories included developmental delay (61.1%), Down syndrome (12.9%), other health impaired (10.6%), speech/language impairment (5.9%), autism (3.5%), learning disabilities (3.5%), and hearing impaired (2.4%),

All classrooms had one teacher and at least one full-time teaching assistant. The intervention teachers ( $n = 7$ ) were Caucasian, non-Hispanic females with, reporting on average, 6.6 years of teaching experience (range= 5-12 years). All of these teachers had at least a bachelor's degree, 71% reporting a master's degree as their highest level of education; 29% reporting certification in early childhood, 57% in special education, and 14% in both early childhood and special education. The comparison teachers ( $n = 5$ ) were primarily Caucasian, non-Hispanic females and one African-American female with, reporting on average, 5.8 years of teaching experience (range= 3-15 years). All of these teachers had at least a bachelor's degree, 80% reporting a master's degree as their highest level of education; 60% reporting certification in early childhood, 40% in special education, and 20% in both early childhood and special education.

## Procedure

The *Read It Once Again* curriculum (<http://www.readitonceagain.com>) was designed to promote a language and literacy rich environment using classic children's books (e.g., *Corduroy*, *The Very Hungry Caterpillar*) (Schaper, 2002). *Read It Once Again* reinforces rhyme, rhythm, and repetition while addressing the development of essential early literacy and language skills that have been identified by the National Early Literacy Panel (NELP): phonological awareness; rapid automatic naming of objects or colors; writing; and phonological memory (NELP, 2009). Each storybook unit is centered on one popular children's book. Unit activities focus on repetition and consistency including daily readings of the book, daily recitations and sequencing of a related Mother Goose rhyme, as well as story-related music and activities that address cognitive (e.g., sorting, matching, visual discrimination skills), fine motor (e.g., using scissors, crayons, and pencils to complete pictures and make puzzle pieces) and gross motor (e.g., acting out the story and related songs), socialization (e.g., dramatic play with story props), and adaptive skills (e.g., making related snacks and dressing in story character costumes). Family involvement is supported through letters that are sent home at the beginning and end of each unit, and a personal copy of the storybook that is sent home with each child at the end of the unit.

*Read It Once Again* was implemented in the intervention classrooms for a 12-week period. During the intervention period, one storybook unit was completed every four weeks for a total of three units per classroom. The teachers individually chose which units they wanted to implement in their classrooms from the more than 30 units that were available. Each teacher was directed to complete certain required activities daily (reciting the Mother Goose rhyme, reading the story, using other related music and rhymes, and incorporating cognitive and motor activities), at least once a week (review rhymes from previous units; add, change, or rotate story props in the dramatic play center; paint pictures of objects or characters from the story; incorporate snacks or related foods), or once a unit (parent letters, "Packet Day," sending home a

copy of the story). Daily activities (e.g., reading the story, reciting the Mother Goose rhyme) were usually 15-20 minutes in length. In general, activities of the day were proportioned accordingly: repeated reading of storybook (40%); Mother Goose rhyme (15%); music and rhymes related to the story (15%); painting activity (10%); fine motor, gross motor, cognitive activities (10%); story props in dramatic center (5%); and snacks (5%).

In the comparison classrooms, teachers maintained their “business-as-usual” early childhood curriculum over the same 12-week period. All teachers included activities that supported socialization, cognitive, fine and gross motor, language/ early literacy, and adaptive skills in their classroom curriculum. All teachers read children’s books to their students, and included music in the classroom.

Graduate research assistants conducted all pre- and post- standardized child assessments and collected fidelity data. The preschool teachers implemented the interventions.

*Teacher training.* Intervention teachers participated in a two-hour training session with the author of the *Read It Once Again* curriculum. Teachers were taught how to implement all components of the intervention and were provided with the necessary materials, including copies of the storybooks to be sent home with the children at the end of each unit. The literacy units were approximately \$50 each and included a color CD with all materials. Teachers were provided a checklist that outlined the key components of the *Read It Once Again* curriculum activities. Research assistants met with the intervention teachers during the 12-week period for purposes of checking fidelity and conducting child assessments. The research assistants were doctoral students in special education and had teaching experience in early childhood and special education settings. Intervention teachers did not receive feedback on their instruction as long as they followed the *Read It Once Again* checklist.

Teachers in the comparison classrooms were asked to complete a checklist to indicate the types of activities that occurred regularly in their classrooms. Comparison teachers met with the research assistants and were asked to maintain their teacher-created classroom curriculum (thematic units) and procedures that were already in place, and to continue to include activities that specifically addressed socialization, cognitive, motor, language, early literacy, and adaptive skills each week. The comparison teachers did not receive feedback on their instruction over the 12-week period, although the teachers had periodic communications with the research assistants during fidelity observations and child assessments.

*Implementation fidelity.* To insure that intervention teachers implemented *Read It Once Again* with fidelity, each teacher was required to fill out a daily checklist to indicate which of the required activities (e.g., read curriculum unit storybook, fine motor activity related to story, packet day activity to conclude unit) had been completed that day (see Appendix A). At the end of each week, the teachers sent the checklist to the research team via e-mail along with a copy of their weekly lesson plan. Additionally, research assistants visited each classroom a minimum of once each unit to observe and videotape classroom activities and collect unit artifacts. Research assistants were trained in the *Read It Once Again* curriculum by the author and used the fidelity checklist to document observed activities or collect evidence indicating that they were completed. Across the seven intervention teachers, 91% of the teacher checklists and lesson plans were submitted to the research team, reporting an average fidelity of 98% (range= 79%-100%). Researcher checklists indicated 100% fidelity across all intervention classrooms.

To insure that comparison teachers were maintaining traditional early childhood programming without the addition of any *Read It Once Again* materials, each comparison teacher was also required to complete a daily checklist (see Appendix B) to indicate which types of activities had been implemented during the day (e.g., socialization, cognitive, fine and gross motor, language/early literacy support). At the end of each week, the teachers sent a copy of the checklist with the accompanying weekly lesson plan to the research team via email. Research assistants also completed classroom observations of comparison classrooms once every four weeks, using the fidelity checklist to document observed activities or collect evidence indicating that they were completed. Across the five comparison teachers, 84% of the teacher checklists and lesson plans were submitted to the research team, reporting an average fidelity of 100%. Researcher checklists also indicated 100% fidelity across comparison classrooms.

## Instrumentation

The child outcome variables were assessed using measures of language and early literacy skills. Measures included two well-validated and reliable standardized assessments: The Peabody Picture Vocabulary Test, 4<sup>th</sup> edition (PPVT-4; Dunn & Dunn, 2007) and the Preschool Language Scales, 4<sup>th</sup> edition (PLS-4; Zimmerman, Steiner, & Pond, 2002, 2004).

The PPVT-4 is an individually administered test of receptive language that requires approximately 15 minutes. Students are presented with a page of four pictures from which to choose one that represents the verbal prompt given by the administrator. The PPVT is a standardized, norm-referenced, individually administered test of receptive language and vocabulary that assesses a student's ability to comprehend word meanings. It is widely used in early childhood research as a general indicator of English-language learning and competence for instructional planning as well as for summative and formative evaluation (Dunn & Dunn, 1981; Dunn & Dunn, 2007).

The PLS-4 is an individually administered test of auditory comprehension (receptive language) and expressive language that requires approximately 20-45 minutes to administer. Auditory comprehension subscales measure language in the areas of attention, semantics, and structure. Expressive communication subscales measure language in the areas of social communication, structure, vocal development, and semantics. Both subtests also assess integrative language skills and phonological awareness.

In addition to the two standardized assessments, progress-monitoring measures were also included: the Early Literacy Individual Growth and Development Indicators (IGDI) of Picture Naming and Rhyming (McConnell, 2003; <http://ggg.umn.edu>). These measures are individually administered and can be collectively completed in one testing session of approximately 5-10 minutes. The Picture Naming IGDI served as an indicator of expressive language development. This measure uses color pictures of objects that are found in the home, school, and community. Administrators randomly selected up to 50 cards from the approximately 120 cards available. The child was timed while naming the pictures that were shown one at a time as quickly as possible. The score reflected the number of pictures the child named correctly in one minute. The Rhyming IGDI served as an indicator of phonological awareness. The child was again timed while trying to identify the two pictures out of four on a card that represented a rhyming pair. The score reflected the number of rhyming pairs the student correctly identified in two minutes.

Test-retest reliability for the PPVT-4 is .77 and alternate form reliability is .82; correlations between the PPVT-4 and the CELF-4 for 5-8 year olds ranged from .67 to .73 (Dunn & Dunn, 2007). Reported test-retest reliability coefficients for the PLS-4 range from .73 to .86 for the subscale scores and .80 to .89 for the total language score (cf. Zimmerman, Steiner, & Pond, 2004). Reliability and validity of the Early Literacy IGDIs has been described in previous research (e.g., Missall & McConnell, 2004; Missall et al., 2006; Missall et al., 2007) with scores on both the Picture Naming and Rhyming IGDIs stable over time ( $r = .67, p < .01$  and  $r = .83-.89, p < .01$  respectively; Missall & McConnell, 2004), as well as indications of strong correlations with other standardized measures of language and literacy development: Picture Naming and the PPVT ( $r = .56-.75, p < .001$ ), Picture Naming and the PLS ( $r = .63-.79, p < .001$ ), Rhyming and the PPVT ( $r = .56-.62, p < .05$ ), Rhyming and the Concepts About Print (Clay, 1985;  $r = .54-.64, p < .01$ ), and Rhyming and the Test of Phonological Awareness (Torgesen & Bryant, 1994;  $r = .44-.62, p < .05$ ) (Missall & McConnell, 2004).

All participants were assessed mid-January and again about 3 months later in April. Assessments took place outside of the classroom in a quiet area in the school. Each measure was individually administered with PPVT first, Picture Naming second, Rhyming third (Session one) and PLS fourth (in session 2) to allow children to “warm up” by starting with nonverbal before verbal measures during two to three separate sessions per child. Researchers and research assistants (graduate students in early childhood and special education) were aware of group assignments and trained on the standardized procedures and scoring for each measure.

## Design and Data Analysis

Although interventions were delivered in classrooms, our sample did not meet the commonly offered rule of thumb [i.e., at least 20 groups (e.g., classrooms or teachers) with at least 30 observations (e.g., students) per group] for use of multilevel models (cf. Bickel, 2007; Heck & Thomas, 2000; Hox, 2002). As an alternative, we compared outcomes across intervention classrooms using univariate analyses of variance to assess teacher effects. We used quasi-experimental (i.e., non-equivalent group) repeated measures analyses of variance and *a priori* follow-up univariate contrasts for each of the outcome measures to evaluate the development of language and early literacy skills in children with or at risk for disabilities in intervention and comparison groups. We set alpha at 0.01 to reduce the probability of Type I error resulting from multiple comparisons within and between groups.

## RESULTS

We were interested in the effects of *Read It Once Again* on skills of students at risk for failure and preschool students with disabilities in public elementary schools. We completed two studies using the same procedures and different groups of students. We report outcomes across multiple measures of early language and literacy development separately for at-risk students and their peers with disabilities.

## At-Risk Students

Non-statistically significant teacher effects were indicated across Intervention group teachers for PPVT,  $F(1,24) = 0.41, p > .01$ , PLS,  $F(1,24) = 0.04, p > .01$ , Picture Naming,  $F(1,24) = 0.29, p > .01$ , or Rhyming,  $F(1,24) = 1.51, p > .01$ . Since no effects were evident across teachers, they were not considered further in subsequent comparisons in which students served as the unit of analysis.

Means, standard deviations, and post-test effect sizes for at-risk students in Intervention and Comparison Groups are in Table 1. No statistically significant PPVT differences were indicated for Group,  $F(1,63) = 1.47, p > .01$  and Occasion,  $F(1,63) = 0.71, p > .01$  main effects or Group x Occasion interaction,  $F(1,63) = 6.80, p > .01$  simple effects. Outcomes of *a priori* comparisons of pretest and posttest improvements were also not statistically significant,  $t(38) = -2.61, p > .01$ , for Comparison group or Intervention group  $t(25) = 1.23, p > .01$ , students.

No statistically significant PLS differences were indicated for Group,  $F(1,63) = 4.67, p > .01$  and Occasion,  $F(1,63) = 3.89, p > .01$  main effects or Group x Occasion interaction,  $F(1,63) = 0.09, p > .01$  simple effects. Outcomes of *a priori* comparisons of pretest and posttest improvements were also not statistically significant,  $t(38) = -1.25, p > .01$ , for Comparison group or Intervention group  $t(25) = -1.60, p > .01$ , students.

No statistically significant Group x Occasion interaction simple effects were indicated for Picture Naming,  $F(1,63) = 4.07, p > .01$ ; statistically significant main effects were indicated for Group,  $F(1,63) = 23.31, p < .01$  and Occasion,  $F(1,63) = 12.72, p < .01$ . Outcomes of *a priori* comparisons of pretest and posttest improvements were statistically significant,  $t(38) = -5.25, p < .01$ , for Comparison group, but not for the Intervention group  $t(25) = -0.83, p > .01$ , students.

No statistically significant Group x Occasion interaction simple effects were indicated for Rhyming,  $F(1,63) = 2.64, p > .01$ ; statistically significant main effects were indicated for Group,  $F(1,63) = 13.05, p < .01$  and Occasion,  $F(1,63) = 24.58, p < .01$ . Outcomes of *a priori* comparisons of pretest and posttest improvements were statistically significant,  $t(38) = -4.77, p < .01$ , for Comparison group, but not for the Intervention group  $t(25) = -2.56, p > .01$ , students.

In summary, improvements were not statistically significant for Comparison or Intervention group students' PPVT or PLS Standard Scores. Similarly, improvements were not statistically significant for Comparison students on IGDI Picture Naming or Rhyming; however, statistically significant improvements on Picture Naming and Rhyming skills were indicated for Intervention students.



TABLE 1  
Means, Standard Deviations, and Effect Size Outcomes for At-Risk Students' Comparison and Intervention Group Comparisons

Measure	Group								<i>d</i>
	Comparison				Intervention				
	Pretest		Posttest		Pretest		Posttest		
	Mean	<i>SD</i>	Mean	<i>SD</i>	Mean	<i>SD</i>	Mean	<i>SD</i>	
Peabody Picture Vocabulary Test	98.95	14.10	102.49	12.92	97.92	11.47	96.12	11.20	0.49
Preschool Language Scales	202.97	25.67	206.10	28.72	188.88	24.50	193.12	25.43	0.45
IGDI Picture Naming	23.23	5.59	28.64	7.10	18.36	7.08	20.27	6.82	1.18
IGDI Rhyming	6.38	5.24	10.56	6.26	3.14	3.67	5.11	5.97	0.87

*Note.*  $d = (\text{Intervention Posttest Mean} - \text{Comparison Posttest Mean}) / SD_{pooled}$

## Students with Disabilities

Non-statistically significant teacher effects were indicated across Comparison group teachers for PPVT,  $F(3,31) = 3.31, p > .01$ , PLS,  $F(3,31) = 0.04, p > .01$ , and Rhyming,  $F(3,31) = 1.51, p > .01$ ; statistically significant teacher effects were evident for Picture Naming,  $F(3,31) = 6.08, p < .01$ . Non-statistically significant teacher effects were indicated across Intervention group teachers for PPVT,  $F(4,42) = 0.79, p > .01$ , PLS,  $F(4,42) = 0.35, p > .01$ , or Rhyming,  $F(4,42) = 2.24, p > .01$ ; statistically significant teacher effects were evident for Picture Naming,  $F(4,42) = 5.34, p < .01$ . Because similar effects were evident across teachers in both groups, they were not considered further in subsequent comparisons in which students served as the unit of analysis.

Means, standard deviations, and post-test effect sizes for students with disabilities in Intervention and Comparison groups are in Table 2. No statistically significant PPVT differences were indicated for Occasion,  $F(1,80) = 7.71, p > .01$  main effects or Group x Occasion interaction,  $F(1,80) = 0.06, p > .01$  simple effects; Group main effects were statistically significant,  $F(1,80) = 14.55, p < .01$ . Outcomes of *a priori* comparisons of pretest and posttest PPVT improvements were also not statistically significant,  $t(34) = -1.78, p > .01$ , for Comparison group or Intervention group  $t(46) = -2.22, p > .01$ , students.

No statistically significant PLS differences were indicated for Group x Occasion interaction,  $F(1,80) = 0.59, p > .01$  simple effects; Group,  $F(1,80) = 16.11, p < .01$  and Occasion,  $F(1,80) = 8.87, p < .01$  main effects were statistically significant. Outcomes of *a priori* comparisons of pretest and posttest PLS improvements were also not statistically significant,  $t(34) = -1.77, p > .01$ , for Comparison group or Intervention group  $t(46) = -2.58, p > .01$ , students.

No statistically significant Group,  $F(1,80) = 1.50, p > .01$  main effects or Group x Occasion interaction,  $F(1,80) = 1.10, p > .01$ , simple effects were indicated for Picture Naming; statistically significant main effects were indicated for Occasion,  $F(1,80) = 12.82, p < .01$ . Outcomes of *a priori* comparisons of pretest and posttest improvements were statistically significant  $t(46) = -3.43, p < .01$ , for the Intervention group, but not for Comparison group,  $t(34) = -1.76, p > .01$ , students.

No statistically significant Group,  $F(1,80) = 0.46, p > .01$  main effects or Group x Occasion interaction,  $F(1,80) = 3.18, p > .01$ , simple effects were indicated for Rhyming; statistically significant main effects were indicated for Occasion,  $F(1,80) = 10.98, p < .01$ . Outcomes of *a priori* comparisons of pretest and posttest improvements were statistically significant  $t(46) = -3.34, p < .01$ , for the Intervention group, but not for Comparison group,  $t(34) = -1.43, p > .01$ , students.

In summary, improvements were not statistically significant for Comparison or Intervention group students' PPVT or PLS Standard Scores. Similarly, improvements were not statistically significant for Comparison students on IGDI Picture Naming or Rhyming; however, statistically significant improvements on Picture Naming and Rhyming skills were indicated for Intervention students.

TABLE 2  
Means, Standard Deviations, and Effect Size Outcomes for Students with Disabilities' Comparison and Intervention Group Comparisons

Measure	Group								
	Comparison				Intervention				
	Pretest		Posttest		Pretest		Posttest		<i>d</i>
Mean	<i>SD</i>	Mean	<i>SD</i>	Mean	<i>SD</i>	Mean	<i>SD</i>		
Peabody Picture Vocabulary Test	60.57	27.94	63.40	29.96	78.21	14.30	81.60	13.50	0.61
Preschool Language Scales	128.03	31.96	132.71	38.70	154.72	29.78	162.66	32.33	0.77
IGDI Picture Naming	10.23	9.62	12.31	3.03	11.71	6.95	15.57	8.53	1.08
IGDI Rhyming	1.60	3.66	2.14	4.07	1.29	2.79	2.58	3.75	0.11

*Note.*  $d = (\text{Intervention Posttest Mean} - \text{Comparison Posttest Mean}) / SD_{\text{pooled}}$

## DISCUSSION

The development of early literacy skills in children before entering school is a critical factor for success in kindergarten (Justice, Invernizzi, & Meier, 2002; Justice et al., 2010; Mashburn et al., 2009; Missall et al., 2006). Early childhood educators must implement curricula and activities that support the development of early literacy and language skills in all children. The research on effective early literacy curricula for preschoolers supports the use of repetitive readings; chanting rhymes and poems; singing songs; read alouds; and explicit instruction in rhyming, alliteration, and language (Morrow & Tracey, 2007). Yet, only one curriculum (*DLM Early Childhood Express with Open Court Reading Pre-K*: SRA/ McGraw-Hill, 2003) has demonstrated a positive impact on pre-kindergarten reading, phonological awareness, and language (Preschool Curriculum Evaluation Research Consortium, 2008).

There are limited research-validated curricula that address these critical early literacy and language skills in typically developing preschoolers, and less is known about curricula for preschoolers with disabilities or at risk for disabilities. Although some studies have investigated curricula with Head Start populations (Justice et al., 2010), few researchers have evaluated the impact of early literacy curricula with young children with moderate to severe disabilities (e.g., Isakson, Marchand-Martella, & Martella, 2011). This study reported on a curriculum, *Read It Once Again*, that was implemented with four-year-old children at risk for delays in development and with preschoolers with varying disabilities. Although we did not investigate the impact of individual components of the curriculum, we believe a powerful feature was the use of repeated readings of the books and the rhyming activities associated with the Mother Goose activities. The use of supplemental materials (e.g., cognitive, fine motor, gross motor, socialization, adaptive skills) in daily activities was also an important feature, but to a lesser degree. We also believe the impact of the curriculum on child outcomes was partly due to the fact that the materials were organized for teachers in 3-ring binders and were easy to use in daily and weekly activities. Each of the intervention teachers continued to use the *Read it Once Again* materials one year after the end of the study. The major findings of this study suggest that *Read It Once Again* may be a promising curricular tool that is beneficial to young children with disabilities.

Children exposed to curriculum made gains of 4-5 more words per minute and were able to rhyme 1-2 more words per minute; and, the rhyming gains in particular were important, as the skills are indicators of phonemic awareness an important pre-reading skill. Although these improvements were modest (i.e., reflecting 20-30% improvements), we believe that IGDI subtests are sensitive indicators of change in early literacy skills in children with developmental delays and that greater gains were likely if the intervention had been extended over a longer period of time.

### Implications for Practitioners

Our findings suggest that the *Read It Once Again* curriculum promotes positive outcomes using features of evidence-based practices recommended for effective early literacy instruction (cf. IRA & NAEYC, 1998; Justice, Invernizzi, Geller, Sullivan, & Welsch, 2005; Justice et al., 2011; Morrow & Tracey, 2007; NELP, 2009; Scarborough, 2005; Wilcox et al., 2011). Because of the limited number of currently available research-based preschool curricula, particularly for children with disabilities (e.g., Preschool Curriculum Evaluation Research Consortium, 2008),

we believe this is a significant and important finding. Understanding the importance of early literacy and language development as well as the increased risk for young children with disabilities to develop reading difficulties underscores the critical need to identify research-based curricula that can effectively address the needs of this population. *Read It Once Again* appears to be a promising example.

Our findings also validate the use of the IGDI measures to monitor progress over a relatively short period of time. The Picture Naming IGDI and the Rhyming IGDI were sensitive to changes in expressive language and phonological awareness respectively over a 12-week period. These findings corroborate those of previous researchers (cf. Missall et al., 2006) and offer guidance for teachers and other professionals addressing both summative and formative evaluation questions with young children.

### Implication for Future Research

As is often the case when searching for answers to early childhood intervention questions, additional questions begin to emerge. Though the findings of this study are promising, several considerations remain. Initial results indicate that the *Read It Once Again* curriculum could be effective over a short period of time with young students with disabilities. What then could be the potential benefits if the program were implemented over the course of an entire school year? Could a longer intervention period further improve student outcomes? Another consideration is the potential long-term benefits to preschoolers who participate in this curriculum. Could these positive effects carry over into the kindergarten year? Might these students progress more rapidly than their peers when they begin receiving formal reading instruction in kindergarten or first grade?

### Limitations

There are several limitations in this study that warrant discussion. First, the study employed a quasi-experimental design to study the potential impacts of the *Read It Once Again* curriculum on the literacy and language skills of children. A randomized trial design would have provided a stronger form of causal evidence. Second, because of the widespread use of the *Read It Once Again* curriculum in the southeast, we had to rely on a sample of convenience. It was difficult to find teachers who were not already implementing the *Read It Once Again* curriculum in early childhood special education classrooms. Third, due to project funding timelines, we were not able to implement the *Read It Once Again* curriculum until January, limiting the study to a 12-week intervention period. Results may have been different, particularly in the 4-K classrooms, if the students received *Read It Once Again* from the beginning of the school year. Our final limitation was the sensitivity of the measures. Both the PLS-4 and the PPVT-4 may not be sensitive enough to small amounts of change over short periods of time.

## Summary and Perspective

Identifying research-validated early literacy curriculum for young children with disabilities and at-risk for disabilities continues to be a challenge for the field of early education and special education (Justice et al., 2010; Missall, et al., 2006; Morrow & Tracey, 2007; National Early Literacy Panel, 2009; Preschool Curriculum Evaluation Research Consortium, 2008; U.S. Department of Education, 2005). This quasi-experimental study provides support for the use of the *Read It Once Again* curriculum for young children with disabilities. Evidence of the effectiveness of the curriculum with typically developing 4-K children remains undocumented. The developers of the *Read it Once Again* curriculum have begun to design units that address more advanced literacy skills for kindergarten ages (Schaper, personal communication, March 8, 2011; [www.readitonce.com](http://www.readitonce.com)). Future efficacy research on Level 2 units is expected. For now, the *Read It Once Again* curriculum offers early childhood special educators a potentially high-impact curriculum for early literacy and language skills (e.g., picture naming and rhyming).

This research also underscores the need for early childhood educators to use more sensitive measures of early literacy. If the progress-monitoring measures (McConnell, 2003; <http://ggg.umn.edu>) had not been used, it would have been impossible to identify the important gains that children made during intervention. Standardized measures such as the PPVT and PLS might have detected gains over a longer period of time. For the purposes of teacher-friendly classroom practices, using the IGDI assessment measures to supplement standardized assessment tools appears provide better opportunities for monitoring progress over short periods of time typically targeted for response-to-intervention and other effective practices in which data are used to inform instruction.

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## APPENDIX A

## Read It Once Again - Classroom Activity Checklist

Storybook unit \_\_\_\_\_

Teacher/Classroom \_\_\_\_\_

School \_\_\_\_\_

Week of: \_\_\_\_\_

Activity Description	Monday	Tuesday	Wednesday	Thursday	Friday
Send parent letter to introduce unit (once at the beginning of the unit)					
Add story props to dramatic corner (change, rotate or add daily)					
Paint object/character from story emphasizing object/character name and color used Daily					
Recite Mother Goose rhyme using sequencing cards Daily					
Review Mother Goose rhymes from previous units Daily					
Read curriculum unit storybook Daily					
Story extension activity Daily					
Fine Motor Activity related to story Daily					
Gross Motor Activity related to story Daily					
Cognitive Activity related to story Daily					
Music or rhymes related to the story (in addition to Mother Goose) Daily					
Snack or foods related to the story (Adaptive Skills) (At least two times a week)					
Packet Day activity to conclude unit (Once at the end of the unit)					
Parent letter with child assessment information (Once at the end of the unit)					
Child receives an identical copy of the storybook that has been read each day throughout the unit					

APPENDIX B

Comparison (Business-as-Usual) Group - Classroom Activity Checklist

Teacher/Classroom \_\_\_\_\_

School \_\_\_\_\_ Week of \_\_\_\_\_

**Directions: Please place checks in the boxes to document which type of activity was completed each day. Each type of activity should be addressed at least once each week. Attach a copy of your weekly lesson plan to this checklist.**

Activity	Monday	Tuesday	Wednesday	Thursday	Friday
Activity to support socialization skills					
Activity to support cognitive skills					
Activity to support fine motor skills					
Activity to support gross motor skills					
Activity to support language/early literacy skills					
Music activity					
Daily living/Adaptive skills					

**Questions or Concerns?**