

The Kindergarten Connection: Evaluation of a Summer Literacy Program for Preschool
Special Education Students Entering Kindergarten

Felicia A. Robinson

University of Arizona

Author Note

Felicia A. Robinson, Department of Disability and Psychoeducational Studies, University of Arizona.

Correspondence concerning this article should be addressed to Felicia Robinson, Department of Disability and Psychoeducational Studies, University of Arizona, Tucson, AZ 85721. E-mail: felicar@email.arizona.edu

Abstract

The purpose of this study was to evaluate a kindergarten reading readiness program for preschool special education students entering kindergarten classrooms for typically developing students without special education services or receiving minimal special education services. Participants were 103 children (94% minority) in an urban Southwest setting. The researcher demonstrated that participation in a reading readiness intervention program for preschool special education students does increase emergent literacy scores in vocabulary skills. Implications for future instruction should address the needs of diverse young learners by implementing a systems approach to early literacy in an inclusive preschool environment by (a) providing a comprehensive language and literacy based program of instruction to children at risk of educational failure, (b) providing ongoing teacher professional development and mentoring opportunities, (c) coordinating a family, school, and community partnership.

Keywords: early childhood literacy intervention, kindergarten transition program

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Children develop literacy skills from the first year of life in conjunction with speech and language development that continues through the preschool years and is essential to later literacy acquisition and long term academic success (Gettinger & Stoiber, 2008). Early literacy skills include pre-reading and pre-writing activities, such as letter naming, letter-sound correspondence, naming pictures, scribbling, drawing pictures, telling stories, writing one's name, and identifying letters of the alphabet. All of these activities, with the support of parents, caregivers, and teachers, in addition to exposure to print rich environments, help young children learn how to read and write. Before a child begins receiving formal reading instruction in school, we may refer to the child as an "emergent" reader.

The term emergent literacy was developed by Marie Clay, a researcher from New Zealand, to describe her observations of young children's behaviors when using books and writing instruments to imitate reading and writing activities (Alexander & Slinger-Constant, 2004). This approach led to the emergent literacy perspective, which was derived from cognitive psychology and psycholinguistics. Proponents of this approach take a broader view of literacy to include the importance of early childhood literacy learning in children's acquisition of formal reading and writing skills (Simmons, Kameenui, & Chard, 1998).

Children develop literacy skills in a multitude of ways and at different ages. Most children gain early literacy skills naturally and incidentally through their interactions with supportive parents, caregivers, and extended family members. However, early literacy

development is influenced by the social and cultural backgrounds in which children are raised. A number of factors put children at risk for experiencing later difficulties in acquiring literacy skills, such as having a developmental disability, a parent with a learning disability, English as a second language, a low socioeconomic background, and infrequent exposure to oral and written language (Whiteley, Smith, & Connors, 2007).

Preschool children who experience early reading difficulty are at increased risk for entering kindergarten without an adequate foundation for developing the higher-level literacy skills needed in school. Children entering kindergarten today are variable in school readiness, depending on their socioeconomic status, cultural background, and environmental factors. Unfortunately, children who enter kindergarten with limited literacy and language skills rarely catch up with their peers (Justice & Pullen, 2003). These deficits in early reading skills tend to remain, or even increase through elementary school, thus widening the gap between children who have strong literacy skills and those who do not (Gettinger & Stoiber, 2008).

Children's language and literacy development is highly influenced by literacy practices in the home environment. The majority of poor readers experience difficulties as a byproduct of insufficient preschool exposure to essential language and early literacy experiences necessary for learning the associations between printed letters and speech sounds (Whiteley, Smith, & Connors, 2007a). Researchers show that children from the lowest socioeconomic status backgrounds have been read to for an average of 25 hours prior to kindergarten, in contrast to 1,000 hours for children from high socioeconomic status backgrounds (Bowman, Donovan, & Burns, 2000). In addition, children of parents on welfare were found to have an average vocabulary of 525 words by three years of age,

while children with professional parents had a 1,100 word vocabulary by three years of age. Children from low-income families experience significant difficulties in learning to read and write because they enter school with less exposure to language and less familiarity with letters and words. More than half of the children in the United States have at least one socioeconomic or demographic risk factor for school failure. These include a low level of maternal education, poverty, living in a single parent family, and having non-English speaking parents. Fifteen percent of children in the United States have three or more risk factors (Lazarus & Ortega, 2007).

Early literacy skills are vital to a child's success in school and later life. One of the best predictors of whether a child will be successful in school and go on to contribute actively in our increasingly literate society is the rate of progress in reading and writing (Neuman, Copple, & Bredekamp, 2000). The literacy concepts, knowledge, and skills developed in early childhood are excellent predictors of children's future reading success (Adams, 1990; Donaldson, 1978; Snow, Burns, & Griffin, 1998; Whitehurst & Lonigan, 1998). Children who grow up in literature rich environments enter school with an understanding of the concepts underlying reading before entering school (Adams, 1990; Dickinson & Tabors, 2001). In contrast, researchers have provided evidence that children who have difficulty developing emergent literacy skills in early childhood typically remain poor readers throughout their educational process (Adams, 1990; Francis, Shaywitz, Stuebing, Shaywitz, & Fletcher, 1996; Juel, 1988; Stanovich, 1986; Torgesen & Burgess, 1998).

An important tenet of the early literacy perspective is that children acquire crucial foundation skills and an understanding of literacy well before the onset of formal

instruction (Teale & Sulzby, 1986). The preschool years are critical to the development of emergent literacy skills that will ensure a smooth transition into formal reading (Pullen & Justice, 2003). Providing appropriate supports and experiences during the early childhood years can prevent the development of later reading difficulties. Whitehurst and Lonigan (1998) found three emergent literacy factors associated with later reading achievement: phonological awareness, print awareness, and oral language. In fact, these areas of emergent literacy represent a significant source of the individual differences in later reading achievement (Lonigan, Burgess, & Anthony, 2000; Stuart, 1995).

Early childhood includes children from birth to eight years. Children take their first critical steps toward learning to read and write very early in life. Experiences in the early years can affect the assumptions and expectations about becoming literate and give children the motivation to work toward learning to read and write (Neuman, Copple, & Bredekamp, 2000). The quality of children's experiences within preschool programs may play an important role in their development of academic, language, literacy and social or emotional competencies that help prepare them to enter school ready to learn (Bronfenbrenner, 1986). Children who experience social and economic risks, including developmental delays, may benefit more from attending high-quality preschool programs than their more advantaged peers; thus, programs to deliver high-quality experiences may serve as a protective factor for these children to help reduce the achievement gap that exists at school entry (Burchinal et al., 2000).

Based on Vygotsky's theory, a quality program is one that amplifies the child's learning within age and developmentally appropriate activities by focusing on the accomplishments of preschool, which includes the ability to engage in intentional

learning activities. Brodrova and Leong (2005) found the following components to emphasize the developmentally appropriate content of education and the specific nature of interactions between the teacher and child: the ability to self-regulate behaviors, the ability to use symbols, and the ability to interact positively with peers and adults. Specific knowledge and skills should be viewed as a means to the development of these essential competencies and not as the end result of preschool education. Content should be taught in such a way that it scaffolds the development of underlying competencies.

Early identification and intervention for preschoolers at risk for reading failure are topics of growing interest nationwide. Increase in the use of performance and accountability measures through the No Child Left Behind Act of 2001 has resulted in greater academic pressure for schools and for individual students at young ages (Silliman, Wilkinson, & Brea-Spahn, 2004). With these increased expectations comes the widespread recognition that children arrive at the critical kindergarten juncture with variable states of readiness and that the quality of early learning experiences and environments contributes substantially to that variability (Shonkoff & Phillips, 2000; Snow, Burns, & Griffin, 1998). Up to 40% of children enter kindergarten at least one year behind age level peers in critical language and reading readiness skills. The cost for children to be on grade level with their peers exceeds the costs of prevention and early intervention during the preschool years (Fielding, Kerr, & Rosier, 2007).

Early literacy is the process of learning to understand and use language for functional communication. Functional communication is the forerunner to later success in reading and writing. Children first learn to use oral forms of language, which are comprised of listening and speaking, and then begin to explore and implement the written

forms of language, which are reading and writing. The process of early literacy development is a greater challenge for the young learner identified as having a developmental delay and qualifying for special education services.

Early Childhood Special Education

Early childhood special education is free, appropriate, specially designed instruction to meet the unique needs of a preschool child with a disability from three years of age until the age of eligibility for kindergarten (Arizona Revised Statutes §15-761, 22). Instruction is provided in the least restrictive environment for the child, which often is the public preschool classroom.

Children qualify for preschool special education services under the category of Speech Language Impairment (SLI), Developmental Delay (DD), or Preschool Severe Delay (PSD). SLI is demonstrated as performance by a preschool child on a norm-referenced language test that is at least one and one half standard deviations below the mean for children of the same chronological age or whose speech, out of context, is unintelligible to a listener who is unfamiliar with the child. DD is performance by a preschool child on a norm-referenced test that is at least one and one-half, but not more than three, standard deviations below the mean for children of the same chronological age in two or more of the following developmental areas: cognitive, physical, communication, social or emotional, or adaptive. PSD is defined as performance by a preschool child on a norm-referenced test that is more than three standard deviations below the mean for children of the same chronological age in one or more of the developmental domains. The results of the tests must be supported by information from a comprehensive developmental assessment that includes parental input. As preschool

children transition to kindergarten, the preschool category in which they were served is reviewed. Eligibility criteria for students, ages 8-21, are used to determine which disability classification for special education in Arizona Revised Statute §15-761 is appropriate.

Sociocultural Framework

Vygotsky (1978), in his sociocultural perspective of emergent literacy acquisition, emphasizes social interaction and the influences of culture, peers, and adults on the developing child. Children increasingly understand the purposes of oral and written language as they observe how adults use literacy to construct and communicate meaning, and as they engage in literacy activities themselves. Children's creations of micro-communities, or literacy partnerships, during unstructured play and shared literacy activities, such as reading together, provide opportunities to rehearse the construction and communication of meaning and to engage in representational competence.

To understand the influence of social interactions and culture, Vygotsky proposed the zone of proximal development. This zone is the difference in a child's performance when she attempts a problem on her own and her performance when an adult or a more competent peer provides assistance. A child experiencing difficulty writing letters may be able to demonstrate progress with the help of an adult who writes sample letters or helps the child trace letters. The instructional technique in which the teacher models the desired learning strategy or task and then gradually shifts responsibility to the students is called scaffolding. From this perspective, language and cognition emerge in development at about the same time and are intertwined. Children build new concepts by

interacting with others who either provide feedback about their hypotheses or help them accomplish a task (McGee & Richgels, 1996).

Early Intervention Research

Empirical research in the area of early literacy intervention for the preschool special education population preparing to go to kindergarten is more prolific as programs and strategies to improve young children's reading readiness are of increasing public interest and policy concern in the preschool arena. Bailet, Repper, Piasta, and Murphy (2009) reported results from an assessment and intervention study targeting preschool children at risk for reading failure. Researchers examined an approach for reducing the reading achievement gap evident in pre-kindergarteners exhibiting delays in the acquisition of critical early literacy skills and provided an experimental, targeted educational intervention to better prepare for formal reading instruction in kindergarten and early elementary school.

The intervention consisted of eighteen 30-minute lessons delivered twice weekly for nine weeks and focused on teaching critical emergent literacy skills within small groups. The emergent literacy skill gains of children receiving treatment in the fall (the immediate intervention group) were compared to those assigned to receive treatment in the spring (the delayed intervention group, serving as an untreated control in the fall) to test the impact of the intervention. Instruction was delivered in learning centers, and designed to measure treatment and dosage effects for students' gains in rhyming, alliteration, picture naming, and print and letter knowledge skills. The major findings are that these preschoolers made gains in critical emergent literacy skills in response to the nine week experimental intervention, delivered to small groups in various typical

preschool and child care settings. Specifically, the immediate intervention group made substantial gains in rhyme and alliteration recognition, as compared to the delayed intervention, matched control sample. Researchers found a significant dosage effect for the experimental intervention, as children who received more lessons, on average, gained more in their phonological awareness, vocabulary, print, and letter knowledge skills. In addition, students in the delayed intervention group made similar gains as a result of the intervention, in comparison with gains made during the months in which they did not receive this intervention. Researchers demonstrated a positive impact of this intervention for pre-kindergartners at risk for reading failure.

Implementing a model focusing on similar emergent literacy skills, Edmonds et al (2008) researched a pre-kindergarten summer intervention program for children who attended various community preschools and identified as at risk for later literacy problems in school due to low socio-economic status. Ninety three pre-kindergartners participated in the six week summer intervention program. Researchers documented improvements in children's letter-naming, picture naming, and rhyming skills when compared with a nonparticipating comparison group. The intervention was based on the foundation of early learning initiatives to develop successful school experiences for young children from low-income, high risk-for-failure environments. Intervention methods included language and literacy activities grounded in scientifically based reading research that supported age-appropriate development of oral language, phonological awareness, print awareness, and alphabetic knowledge. Improvements were noted on all measures with greater gains evident for the children in the summer program. Overall,

these trends reflect favorable outcomes for participating students and a positive transition to kindergarten.

Justice, Chow, Capellini, Flanigan, and Colton (2003) used an alternating treatment research design to determine the relative efficacy of an experimental explicit emergent literacy intervention program for preschoolers experiencing multiple risk factors. Participants completed two 6-week waves of intervention in small groups; one wave featured the experimental explicit intervention program, the other featured a comparison program. Emergent literacy assessment was conducted at pretest and at the end of each wave. Significant widespread gains were found in emergent literacy knowledge over the entire 12-week intervention program ($p=.002$); growth was significantly greater during the experimental explicit intervention program than in the comparison program.

Purpose

I hypothesized that a positive relationship existed between participation in a reading readiness program to provide direct instruction in early literacy skills and reading success in kindergarten for previous preschool special education students. The purpose of this study was to examine the efficacy of a kindergarten reading readiness program for preschool special education students who made the transition to kindergarten classrooms for typically developing students without special education services or receiving minimal special education services. The following question guided the research: Does participation in a reading readiness intervention program for preschool special education students who transitioned to a regular education kindergarten classroom increase early

literacy scores in a) phonemic awareness, b) alphabetic principles, and c) vocabulary knowledge.

Method

Participants

Participants resided in an urban school district in the Southwestern United States. The percentage of students identified as minority was 94.4%. Specifically, the ethnic make-up of the student body was 87.7% Hispanic (14,804), 5.6% White (952), 4.1% Native American (687), 2.1% (353) African American, and 0.5% (91) Asian American. During the 2006-2007 school year 14,434 students (83.62%) qualified for free or reduced-price meals. Of the district's 8,642 elementary students, 32% were classified as English language learners. During the 2007-08 school year, the district's graduation rate was 69% and the dropout rate for students in high school was 9.1%. Approximately 14% of the district's student population received Special Education services.

Random selection of participants was not possible because this was an ex post facto study; therefore, a quasi-experimental design was implemented. One hundred twenty eight children met the requirements for the intervention program as they made the transition from preschool to kindergarten without special education services, speech resource services only, or with a 504 plan. All participants and non-participants were recommended by their classroom teachers for the intervention program. One hundred three students, age 5 before or by September 1st (32 girls, 71 boys) attended the program. Twenty five students were unable to participate due to parents' work schedule, the parent training requirement, or a parent's inability to provide transportation. Students' ethnicities were representative of the district population.

Project SOAR Intervention

Project Student Opportunity for Academic Readiness (SOAR) was a privately funded grant, developmentally appropriate summer (four weeks, four days per week, four hours per day), literacy program for preschool students with special needs who were in transition from preschool to kindergarten. The curriculum was developed from the state's Early Learning Standards for kindergarten with a focus on reading, including phonemic awareness, vocabulary knowledge, letter and sound recognition, and text comprehension using a project approach and interactive community-based instruction. Instruction was provided in English with Spanish language support. The program was staffed by preschool teachers, one kindergarten teacher, and four instructional assistants. Parent education sessions were conducted during each of the four weeks with emphases on kindergarten learning expectations. Parents also participated in discussions and activities in the four targeted areas. Activity packets and ideas were sent home for parents to use with their children for the remainder of the pre-kindergarten summer program.

Assessment

Kindergarten assessment. Participating students were administered pre-intervention and post-intervention formative kindergarten assessments in phonemic awareness, initial sound identification, letter recognition, classification, and story elements. Phonemic awareness was assessed by requiring students to produce rhyming words orally in response to spoken words, to blend spoken phonemes to form a single syllable word, and to segment one syllable words into phonemes. When initial sound identification was assessed, students were required to identify the initial and final sounds

(not the letter) of a spoken word. Students were required to identify capital letters of the alphabet to assess letter recognition. Classification skills were assessed by requiring students to sort familiar words into basic categories (colors, shapes, foods, and animals). Story elements were assessed by requiring students to identify characters, settings, and key events, and to sequence story events. The Kindergarten Readiness assessment is presented in Appendices A, B, and C.

DIBELS. All students' early literacy skills were assessed using Dynamic Indicators of Basic Early Literacy Skills (DIBELS). DIBELS is a set of procedures and measures for assessing the acquisition of early literacy skills from kindergarten through sixth grade. DIBELS was designed for use in identifying children experiencing difficulty in acquisition of basic early literacy skills to provide support early and prevent the occurrence of later reading difficulties.

DIBELS is used to assess initial sound fluency, phoneme segmentation fluency, nonsense word fluency, word use fluency, oral reading fluency, and retell fluency. Initial Sound Fluency (ISF), a measure of phonological awareness, is an assessment of a child's ability to recognize and produce the initial sound in a word presented orally. The Nonsense Word Fluency (NWF) measure is a test of the alphabetic principle, including letter-sound correspondence, in which letters represent their most common sounds, and of the ability to blend letters into words. Word Use Fluency (WUF) is given as an oral assessment. Students are given a word and asked to use it in an utterance to demonstrate word meaning.

Elliot, Lee, and Tollefson (2001) established correlations between DIBELS scores. Criterion measures of phonological awareness, standardized achievement

measures, and teacher ratings of achievement provided concurrent validity coefficients ranging from .60 to .70. Hintze, Ryan, and Stoner (2003) conducted a series of diagnostic accuracy studies, using DIBELS as predictor variables and the Comprehensive Test Of Phonological Processing (CTOPP) as the criterion measure, to examine the concurrent validity and diagnostic accuracy of DIBELS compared to the CTOPP. Researchers found that DIBELS strongly correlates with subtest and composite scores of the CTOPP that are designed to measure phonological awareness and memory tasks. ISF task of DIBELS correlated most strongly with the Elision, Blending Words, Sound Matching, and Non-Word Repetition subtests of the CTOPP. Moreover, ISF was quite strongly associated with the Phonological Awareness Composite of the CTOPP and demonstrated a moderate relationship with the Phonological Memory Composite as well.

Data Collection and Analysis

Students' DIBELS benchmark assessment data were obtained from the school district's database for SOAR participants and non-participants. The students were administered DIBELS assessments three times during the school year (August, December and April) from kindergarten through third grade by trained school faculty. Data were reviewed from the beginning, middle, and end of the kindergarten year to determine early literacy skills acquisition and necessity of additional intervention services. Students' DIBELS scores were analyzed using quantitative software to conduct an independent samples t-test comparison of mean differences between participants and the comparison group (eligible, invited non-participants).

Results

Pre-Post Intervention

Year one participating students were administered pre-intervention and post-intervention formative kindergarten assessment in phonemic awareness, initial sound identification, and letter recognition, classification, and story elements. Pre-post intervention assessment data were complete for 18 students. Thirty nine percent of SOAR participants (n=7) demonstrated an increase in phonic awareness, able to distinguish rhyming word pairs, identify initial sounds of a spoken word, or segment one syllable words into phonemes. One hundred percent of SOAR participants (n=18) demonstrated an increase in alphabetic principles, able to name at least one additional letter of the alphabet. Seventy two percent of SOAR participants (n=13) demonstrated an increase in vocabulary skills, able to sort familiar picture words into categories. These data are represented in Table 1.

DIBELS

SOAR participant and non-participant DIBELS normative data were collected and analyzed using an independent samples t test to examine the mean differences between groups. DIBELS data for all three early literacy domains were available for 86 students attending district elementary schools. In Phonemic Awareness, SOAR participants exhibited on average, lower scores ($M=31.07$, $SD=16.93$) than non-participants. The difference in scores for participants and non-participants was not statistically significant at the .05 level ($t [84] = -.251$). The magnitude of the differences in the means (mean differences =-1.18, 95% CI -10.52, 8.16) was a small effect (Cohen's $d =-.07$). In Alphabetic Principles, SOAR participants exhibited on average lower scores than non-participants. Statistically significant differences were not found ($t [84] = .507$). The magnitude of the differences in the means (95% CI: -10.62., 5.28] was a small effect

(Cohen's $d = -.26$). In Vocabulary/Word Use Fluency, SOAR participants exhibited higher scores on average than non-participants. The difference was statistically significant ($t [84] = .049$). The magnitude of the differences in the means (mean differences = 9.58, 95%CI: .03, 19.13) was a medium effect (Cohen's $d = .55$). Statistical comparisons are in Table 1.

Discussion

Consistent with previous literature, the researcher demonstrated that participation in a reading readiness intervention program for preschool special education students moving to a regular education classroom with no or minimal special education services does increase emergent literacy scores, although not to a statistically significant degree. As previously presented, with the exception of one SOAR participant, all participants demonstrated an increase in phonemic awareness, letter naming, or vocabulary skills.

The lack of statistical significance in participants' progress may be attributed to a) developmental delays or individual special needs or b) English Language Learner status of participating children. Participants and nonparticipants met the requirements of dismissal or limited special education services before kindergarten enrollment. Federal guidelines are provided for qualifying preschool children as special needs (IDEA, 2004). However, the guidelines are not as clear in providing requirements for dismissal from special education services (Daley & Carlson, 2009). An evaluation is needed to show that the child is no longer a child with a disability, but the steps involved in determining this process are unclear. The process of exiting students from special education services varies across states and is often inconsistent (Rosenkoetter, Whaley, Hains, & Pierce, 2001). These inconsistencies may account for disparity in early literacy scores.

Early Literacy instruction was provided in English only, although 88% of students spoke Spanish as a first language and exhibited varying degrees of English proficiency. Already the nation's largest minority group (14% of the United States population; U.S. Census Bureau, 2004), recent projections are that by 2030, Latinos will represent approximately one-fourth of America's early childhood population, with many facing the challenges of growing up in poverty and learning English in primarily Spanish speaking households (National Task Force on Early Childhood Education for Hispanics, 2007). Tabors and Snow (2002) documented an achievement gap between White children and children from Spanish speaking households. Many Latino children enter kindergarten scoring significantly below their same-age White, English-speaking peers on many measures of language and literacy (Garcia & Miller, 2008; National Task Force on Early Childhood Education for Hispanics, 2007; Vernon-Feagans, Hammer, Miccio, & Manlove, 2002).

A strategy for improving Spanish-speaking students' educational outcomes is providing content instruction in Spanish (Collier & Thomas, 2004; Oller & Eilers, 2002; Rolstad, Mahoney, & Glass, 2005). Teachers' support of academic instruction in a child's native language will, over time, support improved academic and literacy outcomes in English (Cummins, 1979; Krashen, 1999). For young Spanish-speaking children, researchers provide evidence of cross-linguistic transfer of early literacy skills, with higher achievement in Spanish early literacy development in kindergarten and first-grade predicting improved reading achievement in English in the third and fourth grades (Lindsey, Manis, & Bailey, 2003; Manis, Lindsey, & Bailey, 2004).

The preschool years are critical to the development of emergent literacy skills that will help prevent later reading problems (Pullen & Justice, 2003). Early literacy skills, such as phonological awareness, letter knowledge, phonemic awareness, vocabulary, and text comprehension, are the best predictors of later achievement in reading and oral language (Adams, 1990; Snow et al, 1998.). Parents, teachers, and educational leaders play an important role in helping to develop practices and policies and connections to support early literacy development during the transition to kindergarten. Social connections include interactions between children and teachers, parents and teachers, as well as preschool teachers and kindergarten teachers. Connections are important for supporting competencies in young children that can ensure their school success. When social connections are established and maintained, children may have more positive school experiences because these resources are available (Kraft-Sayre and Pianta, 2003). For example, if parents have positive relationships with their children's teachers, then teachers and parents can work more effectively together to support children's educational progress.

Implications for Practice

Research on improving children's early literacy achievements has implications for educational policy. State and local policymakers can allocate resources to ensure that new knowledge about curricula and professional development is used to improve instructional practice. The need for all young children to be better prepared to enter school ready to learn is evident. Researchers found that the literacy learning strategies thought to be most effective were consistent with conclusions described in the Report of the National Reading Panel (National Institute of Child Health and Human Development, 2000). Early literacy intervention for young children at risk for educational failure is most

effective when instruction is provided by knowledgeable teachers in collaboration with the family and community. This requires a program of instruction that is thoughtful and purposeful. Implications for future instruction should address the needs of diverse young learners by implementing a systems approach to early literacy in an inclusive preschool environment by (a) providing a comprehensive language and literacy based program of instruction to children ranging in age from 2.9 to 5.5 years of age who are at risk of educational failure, (b) providing ongoing teacher professional development and mentoring opportunities, (c) coordinating a family, school, and community partnership.

Language and Literacy. Federal and state legislators have emphasized evidence based practice to guide curriculum and instruction. Evidence must be grounded in scientifically based research, which is the application of systematic and objective procedures to obtain information about questions within a field and to ensure that the research will have a high degree of confidence that it is reliable and valid. Aspects of the summer program designed to support the development of early literacy skills included (a) increased instructional time, (b) continuity of teaching (reducing the amount of time children spend away from educational activities at home during the summer months with reduced language and early literacy skill support), (c) a curriculum with a logical progression of skills, and (d) attention to phonological awareness and oral language.

Professional Development. The need for highly capable teachers is a constant theme in early childhood education literature (Strickland & Riley-Ayers, 2007). National and government mandates have increased the expectations and educational requirements of early childhood teachers for federally and state funded preschool programs (U.S. Department of Health and Human Services, 2003). Early childhood teachers need to be able to promote a range of language and literacy practices and strategies to foster

development and assessment of vocabulary, oral language, phonological awareness, and print awareness.

Family, School, and Community Partnerships. Successful systemic initiatives usually result in an increase in the quantity and quality of the various forms of parent involvement identified by Epstein (1995), as parent volunteers in the school and parents helping their children with homework. Educators implementing these initiatives have succeeded in improving student academic achievement and transforming the culture of schools (Lewis, 1997; Murnane & Levy, 1996). The main goal of parent involvement initiatives is to raise students' academic achievement. Effects of home environments on school learning are significant and well documented in the research literature. There is convincing evidence that parents make significant contributions to their children's school outcomes (Fan & Chen, 2001). Parent participation in their child's education is associated with increased achievement motivation, reduced dropout rate, and improved social behavior and interactions with peers.

Implications for Research

Project SOAR was privately funded for an additional three years. Future research will include implementing a consistent means of data collection and analyses, including pre and post assessment data, as well as early literacy assessment methodology across the school district. Qualitative data can be gathered from parent interviews and focus groups to provide an understanding of the types and frequency of literacy activities parents engage in with their young children with special needs.

Limitations

The data were incomplete as children attended up to 12 different elementary schools across the district. Administrative staff within the school required kindergarten through third grade district wide DIBELS assessment after the SOAR program was implemented, as a result, DIBELS assessment was not consistent across schools within the district and data were not available for 23 students. Ten children no longer resided in the district and their data were unavailable.

Children participating in the program were better prepared for kindergarten than non-participating peers. As a result, the former children are more likely to experience success in their early school years (Campbell et al., 2001; Campbell & Ramey, 1995). Educators in early childhood programs, particularly those serving children at risk, have a unique opportunity to prepare young children to enter formal schooling with the cognitive, language, and early literacy skills necessary for success in kindergarten and later schooling.

This researcher has expanded on previous literature by examining improvements to early literacy skills as a result of a four week summer intervention program to develop early literacy skills of preschool children at risk for academic and social difficulties due to developmental delays. Focusing research efforts on children entering kindergarten contributes important information to dialogue that addresses decisions about universal programs versus targeted services, time devoted to preschool, and prevention efforts to help the most vulnerable children to transition better to formal schooling. Literacy arouses hopes, not only in society as a whole but also in the individual who is striving for fulfillment, happiness and personal benefit by learning how to read and write. Literacy

means far more than learning how to read and write, but how to transmit knowledge and promote social connection and participation (UNESCO Institute for Education, 2010).

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Table 1

Kindergarten Readiness Assessment

Phonemic Awareness			Letter Recognition			Vocabulary		
Pre	Post	Growth	Pre	Post	Growth	Pre	Post	Growth
1	3	2	2	10	8	4	4	0
1	2	1	20	22	2	2	4	2
1	1	0	5	7	2	1	3	2
3	3	0	5	13	8	4	4	0
0	1	1	14	16	2	4	4	0
1	3	2	1	12	11	0	1	1
1	2	1	0	2	2	0	3	3
0	0	0	0	1	1	4	4	0
2	2	0	0	19	19	3	4	1
0	0	0	8	11	3	2	4	2
0	2	2	2	6	4	0	2	2
4	4	0	16	18	2	4	4	0
0	0	0	1	5	4	1	3	2
0	0	0	10	21	11	3	4	1
0	0	0	8	11	3	2	4	2
1	1	0	4	10	6	2	4	2
0	0	0	4	6	2	3	1	2
0	2	2	2	6	4	0	2	2

Note. This table shows the pre-test and post-test scores for participating students in the Early Literacy Summer Intervention Program, for which data was available at both measures.

Table 2

Independent T Test Analysis Summary

Variable	Participants		Non-Participants		<i>t</i> (84)	<i>p</i>	Cohen' <i>d</i>
	M	SD	M	SD			
Phonemic Awareness	31.07	16.93	32.50	17.04	-.251	.80	-.07
Alphabetic Principles	24.7714	13.77	27.44	17.13	.507	.15	-.26
Vocabulary	28.83	17.43	19.25	16.84	2.0	.049	.55

Note: Values are reported as M-Mean score, SD-Standard Deviation from the mean, t-test-test for equality of means, p value-measure of statistical significance (* $p < .05$). Cohen's *d* is a measure of the absolute magnitude of treatment effect size.

Appendix A

Kindergarten Readiness Assessment: Phonemic Awareness

Phonemic Awareness Assessment
Kindergarten

Name _____ Date _____ Score _____

Total Phonemic Awareness
Students must meet standards on all
five phonemic awareness subtests to
receive M on report card.

R-S1C2PO2-Orally produce rhyming words in response to spoken words (e.g., What rhymes with hat?).

Rhyming

I'm going to say a word and you give me one word that rhymes with that word. It can be a real word or a pretend word. If I say pin you could say win or fin. * Now it's your turn. Tell me a word that rhymes with---- (Write student responses)

1. pat _____
2. dig _____
3. hug _____
4. can _____

Score _____
Meets = 3/4

**Teachers may use more examples if needed to ensure the student understands the task.*

R-S1C2PO6- Blend spoken phonemes to form a single syllable word (e.g., /m/.../a/.../n/...makes man).

Blending Phonemes

Date _____

I am going to say three sounds. Listen to the sounds and put them together to make a word. Listen to these sounds. What word do they make? /d/ /o/ /g/. Dog. Listen to these sounds. /c/ /a/ /t/. Cat. Now it's your turn. What words do these sounds make? (Write student responses)

1. /d/ /i/ /g/ _____
2. /b/ /u/ /s/ _____
3. /l/ /i/ /p/ _____
4. /f/ /a/ /t/ _____

Score _____
Meets = 3/4

R-S1C2PO8- Segment one-syllable words into it phonemes, using manipulatives to mark each phoneme (e.g., dog makes /d/.../o/.../g/ while the student moves a tile for each phoneme).

Segmenting Words

Date _____

I am going to say a word. After I say it, you tell me all the sounds in the word. So, if I say, "Sam," you would say, /S/ /a/ /m/. Let's try one. Tell me the sounds in "mop". /m/.../o/.../p/. Let's try one more. Tell me the sounds in "rug", /r/.../u/.../g/. Now you try these words. (Write student responses)

1. fat / ___ / / ___ / / ___ /
2. hop / ___ / / ___ / / ___ /
3. sit / ___ / / ___ / / ___ /
4. bug / ___ / / ___ / / ___ /

Score _____
Meets = 9/12-One point
for each correct sound

** Teachers: Students may use manipulatives (ie., chips fingers) to mark each phoneme.*

Appendix B

Kindergarten Readiness Assessment: Initial Sounds

Phonemic Awareness Assessment
Initial Sounds
Kindergarten

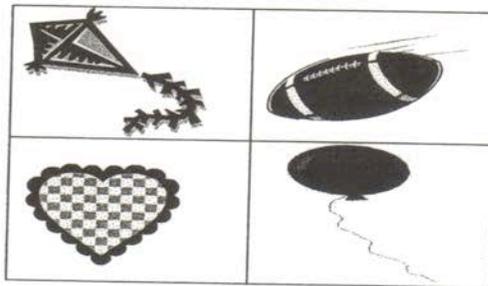
Name _____ Date _____

R-S1C2PO7- Identify the initial and final sounds (not the letter) of a spoken word.

Practice Test

Look at these pictures. This is a *balloon*, *kite*, *football*, and a *heart*. (Point to each picture while saying its name.)

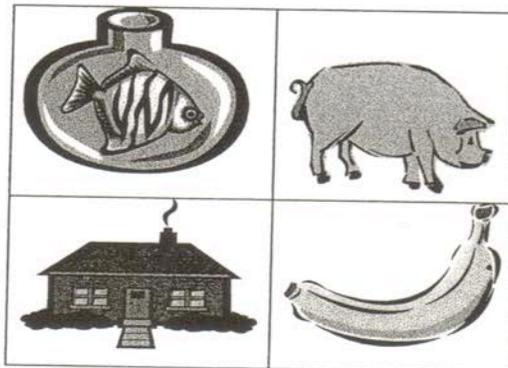
1. Balloon begins with the sound /b/. (Point to the balloon.) Listen, /b/
2. Which word begins with /f/? _____
3. Which word begins with/h/? _____
4. What sound does *kite* begin with? _____



Actual Test

This is a *banana*, *house*, *pig* and a *fish*.

1. Which word begins with /h/ ? _____
2. Which word begins with /p/ ? _____
3. Which word begins with /b/ ? _____
4. What sound does *fish* begin with? _____



Score _____
Meets = 3/4

Appendix C

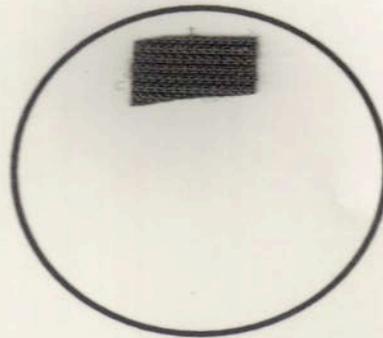
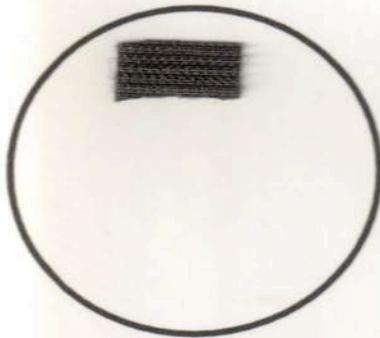
Kindergarten Readiness Assessment: Story Elements

Story Elements Assessment
(Characters, Sequence, Setting)
Rosie's Walk
Kindergarten

R-S2C1PO2- Identify elements of a story including characters, setting and key events.
R-S2C1PO3- Retell or re-enact a story, placing the events in the correct sequence.

Name _____ Date _____ Score _____
(Meets = 6/6)

Who was in the story? Cut out the characters and put them in the circles.
(1 point per character)



What happened in the story? Put the pictures in order.
(1 point per picture in correct sequence)

