

REVIEW of RESEARCH in the CLASSROOM



Early literacy and developmentally appropriate practice: Closing the achievement gap

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Research in early literacy development couldn't be more exciting and relevant than at this time. The spirit of the No Child Left Behind (NCLB) Act of 2001 signals a deeper need for understanding developmental literacy and finding strength in the complex, varied, and multidisciplinary perspectives drawn from research on early literacy. There is a consensus among educators that learning to read and write is indeed critical to a child's success in school and later in life, and that there is a range of emergent literacy skills and strategies necessary for later reading and writing ability.

To become a skilled reader, children need a rich language and conceptual knowledge base, a broad and deep vocabulary, and verbal reasoning abilities to understand messages that are conveyed through print. Children also must develop code-related skills, an understanding that spoken words are composed of smaller elements of speech (phonological awareness); the idea that letters represent these sounds (the alphabetic principle), the many systematic correspondences between sounds and spellings, and a repertoire of highly familiar words that can be easily and automatically recognized (McCardle, Scarborough, & Catts, 2001)."

(Neuman, S.B. & Roskos, K., 2005, p. 126)

But how do young children attain a high level of skill in these strands?

The purpose of this article is to take up the challenge of identifying appropriate educational response to children's early literacy potentials and the means by which we can succeed in teaching them early literacy.

PRESCHOOL ATTENDANCE AS PREDICTOR OF LATER LITERACY SUCCESS

A review of research on preschool education points to the effectiveness of preschool attendance in developmental literacy.

Three significant and seminal studies: (1) The Perry Preschool project in Michigan (1962-1967), (2) The Abecedarian project in North Carolina (1972-1985), and (3) The Title I Chicago Child-Parent Centers research study (1983-1986) lay the groundwork for considering preschool literacy and provide convincing evidence that preschool education has dramatic long-term effects on the literacy development of children in attendance.

The Perry Preschool project demonstrated how individuals who had preschool experience, now age forty, received higher test scores, spent more years in school, were less likely on welfare, earned more money, and were less likely to have been incarcerated.

The Abecedarian Early Childhood Intervention program had similar findings with those individuals, now twenty-one years old, who attended their preschool program. The participants had higher test scores and were twice as likely to have stayed in school or to have attended a four-year college than children who did not. (Schweinhart, 2004)

In the Title I Chicago Child-Parent Centers study individuals who attended preschool, now age 20-21, had 29% higher graduation rates, 42% lower arrests for violent offenses, and 40% lower retention rates than those who did not have preschool attendance. (Reynolds, Temple, Robertson & Mann, 2001).

It is also suggested that Head Start programs have potential long-term positive effects on young children's

education. Head Start programs began in 1965 as part of the war on poverty. Unfortunately, until recently there was little solid research on the long-term effects of Head Start. The research of Garces, Thomas and Currie (2000), UCLA Department of Economics, using evidence from Panel Survey of Income Dynamics (PSID) indicates that participation in Head Start increases the probability of attending college, although white children drove this effect; attending Head Start may increase high school graduation rates among black males; and African Americans who attended Head Start were significantly less likely to have been charged with, or convicted of, any crime. The results support the view that Head Start participants gain social and economic benefits that persist into adulthood (Garces, Thomas, & Currie, 2000). Additionally, Head Start is found to reduce the Latino-white score gap in vocabulary, math and reading between one-quarter and one-third (Walker-James, Jurich & Estes, 2001). At the same time, however, there are issues and concerns surrounding the Head Start programs. Among them are inconsistency and lack of sufficient funding. The quality of Head Start programs varies from program to program. Head Start only requires half of its teachers to have a two-year college degree. Currently, there is no significant increase in funding to help change the level of teacher education. While Head Start programs have begun to devote more time to early literacy activities, they seem to have low standards of expectations. At the end of their Head Start program children are expected to “know that the letters of the alphabet are a special category of visual graphics that can be individually named, recognize a word as a unit of print, identify at least ten letters of the alphabet, and associate sounds with written words” (Taylor, 2001). Head Start serves roughly 800,000 children but this is only around one-third of those eligible, and the current administration has no real plans to increase funding or the numbers of children served. The “Leave No Child Behind” legislation earmarks most funding to testing in grades 3, 4, 5, 6, 7, 8, and 10. The United States is spending roughly 1.7 billion dollars on pre-school education (mainly for Head Start programs); this figure is some 33 to 42 billion dollars short of providing all three and four year-olds quality pre-school education (Starr, 2002).

Connecticut Commissioner of Education Betty Sternberg (2004) writes:

Numerous studies demonstrate that preschool gives young children what they need to do well in school. In Connecticut, 18,000 children do not attend preschool; 14,000 of them reside in our poorest towns... By lessening the gaps among students before they enter kindergarten, we have a chance to close the gaps that increasingly manifest themselves over the k-12 continuum. (p. 2)

Notwithstanding the challenges that continue to impede the effective implementation of preschool programs, research indicates that preschool attendance is

academically and socially effective (Reynolds, 2002), and extremely cost effective (Bracy, 2003). Bracy’s analysis of cost benefits factoring in the cost of special education, retention, and incarceration shows that pre-school programs save \$7.00 for every \$1.00 spent. Sadly, despite strong evidence of long-term and sound academic, social and economic outcomes of preschooling, preschools do not seem to be reflected in our nation’s priority agenda. Merrow (2002) writes:

We ought to be embarrassed about our approach to preschool. Most industrialized countries provide free, high-quality preschool for 3-4, and 5-year-olds, regardless of family income. Almost all 4-year-olds in England, Luxemburg, and the Netherlands go to public school; 70 percent of the German, Danish, and Greek 4-year-olds go to public school; and 90 percent of the 4-and-5-year-olds in Italy and Spain are in public schools. (p. 35)

Year after year, the United States performs poorly in comparison to other industrialized nations. In 1998, five of the above mentioned nations participated with the U.S. in the Third International Mathematics and Science Study (TIMSS). All five nations had higher scores than the United States in math and science (Asimov, 1998). Merrow’s (2002) point is well taken. Neuman and Roskos (2005) report on “The state of state pre-kindergarten standards” citing recent federal initiatives (e.g., Good Start Grow Smart and the Child Care and Development Grant) calling for states to develop early learning standards for children ages 3-5 in language, literacy and mathematics. They argue that “coherent, quality standards and their benchmarks (indicators) must be solidly grounded in research, and reflect age-appropriate outcomes for young children.” (p. 125) The National Association for the Education of Young Children (NAEYC) corroborates this thinking and recognizes and promotes clear and comprehensive developmentally appropriate content and outcomes. Six NAEYC standards (NAEYC, 2000) that strongly apply to literacy include the following:

- The program promotes positive relationships among all children and adults to encourage each child’s sense of individual worth and belonging as part of a community and to foster each child’s ability to contribute as a responsible community member.
- The program implements a curriculum that is consistent with its goals for children and promotes learning and development in each of the following domains: aesthetic, cognitive, emotional, language, physical and social.
- The program uses developmentally culturally, and linguistically appropriate and effective teaching approaches that enhance each child’s learning and development in the context of the program’s curriculum goals.
- The program is informed by ongoing systematic, formal and informal, development. These

assessments occur within the context of reciprocal communications with families and with sensitivity to the cultural contexts in which children develop. Assessment results are used to benefit children by informing sound decisions about children, teaching, and program improvement.

- The program employs and supports a teaching staff that has the educational qualifications, knowledge and professional commitment necessary to promote children's learning and development and to support families diverse needs and interests.
- The program establishes and maintains collaborative relationships with each child's family to foster children's development in all settings. These relationships are sensitive to family composition, language and culture.

Needless to say, even the best of standards for young children's literacy learning, will prove ineffective unless we are prepared to develop, implement and monitor coherent quality programs, and have teachers who recognize and appreciate young children's learning and developmental processes, understand the range of skills and strategies young children need to develop content knowledge and understanding, and knowledgeable about developmentally appropriate practice to help young children develop these skills and strategies.

SINGLE VERSUS "SET" OR "FAMILY" OF COGNITIVE COMPREHENSION STRATEGIES FOR YOUNG CHILDREN: WHAT WORKS?

"An evaluation of two approaches for teaching reading comprehension strategies in the primary years using science information texts" by D. Ray Reutzel, John A. Smith, and Parker C. Fawson (2005) compares and contrast the effects of teaching a series of single comprehension strategies explicitly, one-at-a-time (SSI) and teaching a "set" or "family" of multiple "transacted" comprehension strategies within a collaborative, interactive, and engaging routine (TSI). (p. 280). The authors use Snow and Sweet's (2003, p. 1) definition of reading comprehension "as the process of simultaneously extracting and constructing meaning" with three essential elements—the reader, the text, and the activity embedded within a socio-cultural context. (p. 277)

Early discoveries about literacy instruction particularly at the primary level showed lack of emphasis on comprehending text (i.e., Durkin, 1978/79 as cited by authors). The authors cite research findings that suggest there continues to be limited opportunities for k-3 children to be immersed in comprehension strategy instruction (i.e., Sweet & Snow, 2002; Taylor et al., 1999; and Newman, 2001), in fact, "the terms 'comprehension instruction' and 'primary grades' do not often appear in the same sentence" (Pearson & Duke, 2002, p. 277); that teachers tend to engage young children in narrative or story texts (i.e., Pressley, 2002) and there's lack of attention given to information text (i.e., Palmer & Stewart, 2003; Moss

& Newton, 2002), perhaps because many primary-grade teachers believe that information texts are too difficult for most young children to read. However, Duke (2000, as cited by authors) claims that acquisition of comprehension strategies can be "genre specific" and that "young children require specific instruction with informational texts to assure transfer and generalization of comprehension skills and strategies." (p. 277) Thus, comprehension instruction is critical to developing children's comprehension skills and strategies.

The authors identify two aspects of comprehension instruction as activity—the content (i.e., comprehension monitoring, visual imagery, story structure, prior knowledge, etc.) and mode of comprehension instruction (i.e., teaching single cognitive comprehension strategies in isolation to teaching a multiple "set" or "family" of cognitive comprehension strategies in coordinated use). Evidence from early research supports teaching of single comprehension strategies in isolation, one-at-a-time, in helping children develop their comprehension skills and strategies (e.g., Brown et al., 1996; Dole et al., 1991, as cited by authors, p. 278). On the other hand, the National Reading Panel (2000) endorses use of multiple cognitive comprehension strategy instruction embedded within a collaborative, interactive and engaging context. (p. 279) The question is: Which of these two modes of comprehension instruction is most effective for providing comprehension strategy instruction to young children?

Reutzel et al.'s (2005) 16-week study involved 4 classrooms, 4 second-grade teachers, and 80 second-grade children in a high poverty, low performing, school with approximately 35% diversity (i.e., African American, Asian, and Hispanic). A variety of measures—Gates-MacGinitie reading test (as normative measure of reading comprehension), reading comprehension related items within the State End-of-Level Test in Language Arts, Second Grade (as criterion-referenced measure of reading comprehension), oral retellings of familiar and unfamiliar information text passages (as informal assessment of reading comprehension), Gambrell's (2003) Primary Grade Reading Motivation Student Survey (as student motivation assessment), Science Content Knowledge Acquisition Test (as content knowledge assessment), modified classroom strategy use survey, classroom observation forms for teachers and students, and teacher response journals—were employed to assess a range of students' comprehension related constructs. (pp. 281-284)

The study used a Dominant-Less Dominant Mixed Model design employing both qualitative and quantitative data collection (Tashakkori & Teddlie, 1998) with a Post-Test Only True Experimental design (Campbell & Stanley, 1963) within the Dominant structure, and observations and teacher journals/discussions within the Less Dominant structure. (p. 284) Two instructional treatments were used—Single Strategy Instruction (SSI) and Transactional Strategy Instruction (TSI). The two instructional treatments have similar and different

characteristics. Teachers in both treatments taught cognitive comprehension strategies explicitly. What strategy is to be learned? Why is it important to learn, and where and when it is to be used? They provided scaffolds, modeled through “think alouds”, created opportunities for children to apply the cognitive comprehension strategy previously modeled through interactions around a text; used charts, posters, and graphic organizers representing the processes and procedures used to apply the strategy during reading; gradually released support leading children toward independent use of strategy; and continued to monitor and review children’s application of these strategies during small group guided and independent reading. The children in both treatment groups engaged in verbal interactions among one another using a variety of cooperative and collaborative learning activities, and took increasing responsibility over time for using cognitive comprehension strategies to relate to text. (p. 285)

However, the major difference between the two instructional treatments is in on how cognitive comprehension strategies were taught and gradually released to children for independent application in constructing meaning from text. In the SSI approach teachers taught six comprehension strategies (i.e., activating background knowledge to make connections, predicting, visualizing, monitoring, questioning, and summarizing) one at a time and learners decide how to apply individual strategies to understand text. The SSI teachers spent 13 days to teach a single cognitive comprehension strategy using three science information big books, one science information big book is completed each week for approximately 80-120 minutes of instructional time focused on the application of a single cognitive comprehension strategy. Five days were spent on modeling a single cognitive comprehension strategy, the next 5 days were spent to gradually release responsibility for using the single cognitive comprehension strategy through interactive discussions during readings; and 2-3 days were spent in engaging students in small group and independent applications of the single cognitive comprehension strategy.

In contrast, the TSI teachers taught a set of eight comprehension strategies (i.e., activating background knowledge, text structure, prediction, goal setting, asking questions, imagery, monitoring, and summarizing) and quickly helped learners to use this set of strategies through interacting over multiple texts over time. The TSI teachers took about 35-40 min per day, 3 days per week; the first month of study was spent explicitly teaching each of the eight cognitive comprehension strategies in a set; the remaining 2-3 months were spent on gradually releasing the responsibility to the students for applying the set of comprehension strategies, and the final few weeks on engaging students in taking full responsibility for selecting, explaining, and using all of the strategies in the set during reading. (pp. 284-288)

The findings of this study point to the conclusions that “explicit, systematic, and multi-componential

comprehension strategy instruction of the two modes or approaches (TSI and SSI) evaluated do not produce significantly different results from one another on standardized measures of reading comprehension;” (p. 297) “[They] do not differ one from another in their power to promote student comprehension as measured by a norm-referenced, standardized comprehension subtest.” (p. 298) On the other hand, the findings showed “statistical and practical differences favoring the TSI comparison group on a state, curriculum-based measure of comprehension standards.” (p. 298) Reutzel et al. (2005) contend that TSI has added value for developing and promoting young children’s comprehension development and while learning to teach TSI requires extra effort for classroom teachers, it is still worth it; TSI has practical advantages for helping young children acquire content knowledge, particularly when they are reading information books; and young children can definitely successfully learn how to effectively use and coordinate a “set” or “family” of comprehension and become self-regulated and strategic readers. (pp. 299-302)

Reutzel et al.’s (2005) findings support the notion that for young children to attain a high level of learning skills associated with literacy development, they need opportunities to develop these strands, not in isolation, but in coordination and interaction with meaningful experiences. For example, word knowledge is not just developed through exposure to increasingly complex language, but to knowledge-building experiences (Neuman, 2001) that involve children in developing, and refining networks of categorically related concepts. (Neuman & Roskos, 2005)

On the other hand, in another study, “Contextual and non-contextual knowledge in emergent literacy development: A comparison between children from low SES and middle SES communities” by Ofra Korat (2005) the results of this study acknowledged that word recognition and emergent writing are predicted by non-contextual components and not by contextual. These results do not support previous claims about the importance of young children’s ability to read print in context and to understand the social functions of print for the development of their word recognition (Goodman & Goodman, 1979; Harste et al., 1981; Smith, 1976, as cited by Korat, 2005). Rather, the findings suggest that these abilities may not be as important as a stage in children’s word recognition development and that they do not predict children’s early writing or word recognition. (p. 233)

In addition to examining two components of children’s literacy development: contextual, also termed “emergent literacy environments experience” (Whitehurst & Lonigan, 1998) (e.g., identifying literacy activities, awareness of print function, etc.) versus non-contextual knowledge (e.g., letter names, phonemic awareness, concept about print, etc.), Korat (2005) also explores the relationship between children’s knowledge of these two components and their socio-economic status. The study also asks the question:

Which type of knowledge (contextual or non-contextual) best predicts word recognition and the emergent writing in emergent literacy development? (pp. 220-221) A sample of randomly selected 70 kindergartners (32 girls and 38 boys) in urban neighborhoods in Tel-Aviv, of which 34 (17 girls and 17 boys) were from low SES and 36 (15 girls and 21 boys) from middle SES was used.

Research findings confirmed the existence of two distinct groups of emergent literacy knowledge—contextual and non-contextual; low SES children lagged behind middle SES children in the non-contextual knowledge component—CAP, phonological awareness, and letter names, but not in contextual knowledge component—literacy behavior, reading environmental print; and emergent word recognition and emergent writing were predicted by children’s knowledge in the non-contextual tasks but not by the contextual measures. These findings support the vast literature that claims “low SES children are at risk for reading difficulties (e.g., Dubow & Ippolito, 1994; Smith & Dixon, 1995; Snow, Burns, & Griffin, 1998), particularly in the areas of children’s letter knowledge and phonological awareness prior to entering school (Bowey, 1995; Raz & Bryant, 1990) and in their emergent reading and writing abilities (Aram & Levin, 2001). (pp. 231-232)

The above research studies suggest the complexities of instruction in early literacy and recognize that teaching is an art “rooted in experience, skill, judgment, and intuition of the teacher dedicated to the best interests of the students he or she serves.” (Farstrup, 2002, p. 1) They also provide us with insights into developmentally appropriate practices grounded in research. The relevance of these insights are reflected in a joint position of the International Reading Association (IRA) and the National Association for the Education of Young Children (NAEYC) (2006, pp. 10-11) that offers the following recommended teaching practices during the preschool years:

- positive, nurturing relationships with adults who engage in responsive conversations with individual children, model reading and writing behavior, and foster children’s interest in and enjoyment of reading and writing;
- print-rich environments that provide opportunities and tools for children to see and use written language for a variety of purposes, with teachers drawing children’s attention to specific letters and words;
- adults’ daily reading of high-quality books to individual children or small groups, including books that positively reflect children’s identity, home language, and culture;
- opportunities for children to talk about what is read and to focus on the sounds and parts of language as well as meaning;
- teaching strategies and experiences that develop phonemic awareness, such as songs, fingerplays, games, poems, and stories in which phonemic patterns such as rhyme and alliteration are salient;

- opportunities to engage in play that incorporates literacy tools, such as writing grocery lists in dramatic play, making signs in block building, and using icons and words in exploring a computer game; and
- firsthand experiences that expand children’s vocabulary, such as trips in the community and exposure to various tools, objects, and materials.

Hill-Clarke and Robinson (2006) suggest tapping into young children’s musical intelligence by using musical activities to support early literacy development, such as repeating a familiar nursery song and encouraging children to insert their own rhyming words, playing an excerpt of music and telling children to write about or draw an illustration of how this tune makes them feel, or displaying and/or playing musical instruments and leading a discussion about each instrument’s size, color, and sound. “Singing and listening to nursery songs, folk songs, and jingles can extend and develop vocabulary and comprehension skills. Learning through music can build listening skills, enhance abstract thinking, improve memory, and encourage the use of compound words, rhymes, and images.” (p. 169)

Finally, and in keeping with the joint position of the IRA and NAEYC, in “Promoting creativity for life using open-ended materials” (Drew & Rankin, 2006) in early childhood classrooms, the authors propose that through use of creative arts young children “can draw from their inner resources, making possible direct and clear expression. The goal of engaging in the creative arts is to communicate, think, and feel. The goal is to express thought and feeling through movement, and to express visual perception and creative art making. These forms of creative expression are important ways that children... express themselves, learn, and grow.” (p. 177) The authors also identify the following principles that guide the use of creative arts (pp. 177-181):

- Children’s spontaneous, creative self-expression increases their sense of competence and well-being now and into adulthood.
- Children extend and deepen their understandings through multiple, hands-on experiences with diverse materials.
- Children’s play with peers supports learning and a growing sense of competence.
- Children can learn literacy, science, and mathematics joyfully through active play with diverse, open-ended materials.
- Children can learn best in open-ended explorations when teachers help them make connections.
- Teachers are nourished by observing children’s joy and learning.
- Ongoing self-reflection among teachers in community is needed to support these practices.

CONCLUSIONS

Research findings such as those from the studies addressed in this article invite our thoughtful and critical considerations of the variables and indicators impacting

the success and/or failure of children's early literacy learning. At the same time, they also lead us to question the legitimacy of our choices in instructional frameworks and approaches to teaching developmental literacy. While we are inundated with increasing instructional initiatives grounded in research, it is important that we are able to sustain and continually assess the practices we adopt as a habit of critical reflection.

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5 Key Considerations in Reducing the Achievement Gap: What Schools Can Do Make closing the achievement gap and academic success for all students central to the school's mission, and address activities to include gathering and analyzing data, professional development, and outreach to parents and the community.Â Create a school environment immersed in literacy and committed to student learning of mathematics concepts and basic skills. Students having reading difficulty should be diagnosed early and given immediate, appropriate, and high-quality interventions. Make the curriculum relevant to students by utilizing students and families diverse skills and experiences, and establishing small learning communities. Provide rich and rigorous curriculum for all students. â...ç Interactions among early childhood sci-ence, policy, and practice are problematic and demand dramatic rethinking.2. In sum, children enter the world trying to make sense of communication systems, rules of social interaction, and how things work.Â One of the most ambitious state-level attempts to close the achievement gap between advantaged and disadvantaged young children is taking place in New Jersey.Â â...ç Preschool Curriculum - developmentally appropriate curriculum, aligned with the New Jersey Core Curriculum Content Standards and elementary school reformsÂ These pro-grams are intended to enhance the language and literacy skills of all children and to elimi-nate the achievement gaps among racial/eth-nic and socioeconomic groups.