Curiosity Corner: Getting All Children Ready for School

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When they begin kindergarten, majority and minority children are already far apart in language and pre-academic skills. Policy makers, developers and researchers are attempting to find comprehensive, replicable, proven programs that can be implemented at scale to eliminate this gap. This paper describes a promising approach to improving the education of disadvantaged preschoolers in our nation—*Curiosity Corner*. The underlying theory of action of the program is based on the Multidimensional Intervention Model, which holds that making significant differences in the achievement of at-risk children requires intervening early and on many fronts. A particular focus of *Curiosity Corner* is on enhancing children's oral language development. The paper is organized around the questions that Frede and Ackerman (2007) suggest that educational administrators consider when adopting early childhood programs. This includes a summary of the research on *Curiosity Corner,* which has shown positive impacts on children's oral language and beginning reading skills.

Key Words: comprehensive preschool programs, oral language development, school readiness

The most important problem in the education of America's children is the gap in academic performance between children in poverty and those of more advantaged back-

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grounds, between children from minority and nonminority families, and between English language learners and English proficient children. Despite dramatic increases in preschool participation and many other reforms, minority children and children living in poverty have not advanced significantly in reading in more than 20 years of constant reform. At kindergarten entry, majority and minority children are already far apart in language and pre-academic skills (Barnett, Tarr, & Frede, 1999). This paper describes a promising approach to improving the education of disadvantaged preschoolers in our nation—*Curiosity Corner,* a comprehensive preschool program. The paper begins with an overview of the program and then describes the theory of action underlying *Curiosity Corner*. The remainder of the paper is organized around the questions that Frede and Ackerman (2007) suggest that educational administrators consider when adopting early childhood programs.

When you walk into an effective preschool class, you might find the teacher and assistant teacher(s) on the floor helping children load a toy truck with "bread," in the dramatic play center buying a loaf of bread from the "bakers" or watching a child measure the flour for the tortillas they are making for snack. The preschoolers might be exploring their rich environment, discovering the different forms bread takes, investigating where it comes from, grinding grain to make flour, graphing their bread-type preferences, and tasting their creations. *Curiosity Corner* is a program designed to create this kind of environment.

The overall goal of *Curiosity Corner* is to ensure that every child enters kindergarten with the language skills, early literacy, numeracy concepts, social skills, self-help skills, and self-confidence necessary for success in the elementary grades. It aims to support the children's families, teachers, and communities and is designed to be implemented in a variety of early childhood settings.

Curiosity Corner was designed in consideration of current research on child development and early childhood education, the National Association for the Education of Young Children (NAEYC) guidelines (Bredekamp & Copple, 1997; Neuman, Copple, & Bredekamp, 1999), several state curriculum standards, and the Success for All Foundation's experience in developing educational programs. It was developed by the Success for All Foundation, a nonprofit school reform organization, in collaboration with the Johns Hopkins University's Center for Research and Reform in Education (CRRE).

Curiosity Corner was first created to solve a critical problem. As part of the Abbott v. Burke funding equity decision of the New Jersey Supreme Court, schools in the 30 highest poverty urban districts in New Jersey were required to provide preschool programs for every 3- and 4-year-old, either by expanding public school programs or by contracting with private providers. The New Jersey Department of Education contracted with the Success for All Foundation to develop a comprehensive program to help ensure that teachers in New Jersey preschools would have the curriculum, professional development, materials, and other supports necessary to provide a quality education to the at-risk children entering preschools in the Abbott districts.

Since its start in New Jersey, *Curiosity Corner* has expanded throughout the United States and now serves about 800 public school and private childcare classes of all kinds. The focus of *Curiosity Corner* is on providing teachers with a developmentally appropriate curriculum and instructional strategies supported by follow-up professional development, teacher's manuals, specific materials for children and teachers, and authentic assessments. The program provides a detailed infrastructure designed to be implemented intelligently, flexibly, and with accommodations to children's needs, but with fidelity to the basic design. It is implemented both in half-day and full-day early childhood programs.

The Curiosity Corner Curriculum Overview

Curiosity Corner provides an integrated curriculum with 38 specific weekly thematic units, nested under broader, global themes, which feature concrete, active experiences built on a daily sequence of components: Greetings & Readings, Clues & Questions, Rhyme Time, Learning Labs, Story Tree, Outside/Gross Motor Play, Snack Time, and Question/Reflection.

For example, *Body Talk (body awareness), Yum! Yum! Nutrition (nutrition), Something from Nothing (recycling),* and *On My Own Two Feet (safety)* are the weekly units in the *Healthy Habits* global theme. The activities of every component are integrated around the theme. This enables the children to be immersed in the vocabulary related to a particular topic. During *Yum! Yum! Nutrition* children hear stories related to food, sing songs and chant rhymes about food, play games related to food, pretend in the "restaurant," see which foods float and which sink in the water table, weigh foods, make applesauce, chart their favorite foods, and so forth.

Curiosity Corner was developed as a spiral curriculum. Children are introduced to the basic concepts early in the 3-year-old program and experience them again in later units and again at a more complex level in the 4-year-old program (see Slavin, Madden, Chambers, & Haxby, 2009). The theme and activity sequence is designed to be consistent with the developing abilities of the children as well as the evolving seasons and the time of the school year. These activities expose children who might be at risk for school failure due to poverty the opportunity to experience repeated exposure to the vocabulary and concepts related to knowledge and skills that should prepare them for success in school.

Curriculum Components

Each component of *Curiosity Corner* is designed to promote children's development in various domains. The components are described briefly here in the order they are designed to be implemented during a typical day.

During the first component of the day, Greetings & Readings, children should be welcomed by the staff and eased into the day with a brief unstructured time. Then they all gather on the carpet for Clues & Questions where thematic concepts and related vocabulary are introduced to the children with the use of concrete objects in a problem-solving framework. Often the class mascot, a puppet called Curiosity Cat, brings a theme-related object hidden in a bag. The children are given clues about what is hidden in the bag and they guess what the object is. Then, they proceed to discuss what they know about the object and what they might like to learn about it. This leads into the day's activities, which revolve around the exploration of the thematic concepts. They engage in language, literacy, mathematics, science, and social studies topics related to the theme, building on what they know already.

Rhyme Time is the component that focuses on developing children's phonemic awareness, one of the strongest predictors of future reading achievement. This component uses rhymes, action songs, fingerplays, and games to focus children's attention on the sounds in speech.

Story Tree is the interactive, literature-focused component of the *Curiosity Corner* curriculum, in which teachers read one of the thematically related children's books provided with the program. Story Tree is designed to promote a love of books and reading and build children's vocabulary, listening comprehension, understanding of narrative, and theme concept knowledge. Story Tree includes stories and expository texts from a variety of cultures to support cultural diversity and increase mutual respect and understanding of others.

During Learning Labs children initiate their own activities in problem-solving learning centers. Teachers set up between seven and nine Learning Labs, such as the

Dramatic Play Lab, the Science Lab, the Math/Manipulatives Lab. Each Lab contains thematic material and activities and children decide which labs they want to explore and play in. Teachers are taught to interact with children, individually and in small groups, to provide the reciprocal adult-child interaction to promote children's cognitive and language development (Justice, Meier, & Walpole, 2005; Tomasello & Farrar, 1986). Theme-related activities in the Learning Labs are changed frequently, to stimulate peer interaction (Howe, Moller, Chambers, & Petrakos, 1993). Twice a week, during Learning Lab time, children participate in a brief teacher-directed small-group lab. The small-group lab gives teachers an opportunity to use a variety of games and activities to focus on the development of thematic concepts and vocabulary, to enhance children's oral language production. An example of a small-group lab would be the teacher leading a game of letter-sound bingo with 4 to 5 children who are around the same level in terms of their literacy development.

Thematic concepts and vocabulary are also reinforced during gross motor activities and snack time, so that children are immersed in language related to the theme. At the end of the class, during Question/Reflection, the children review what they have learned during the day or week, often through a synthesis, application, or evaluation activity. For example, they might graph their favorite way to eat apples after having eaten them in a variety of ways for snack (raw, juice, sauce, or pie) or compile a book about their field trip to the market. At the end of each day children are asked to do an activity at home that relates to what they have learned at school.

Theoretical Foundation

Researchers, educators, and legislators today are focusing increasing attention on the role that early experiences play in determining a child's later success in school and in life. The theories of child development underlying *Curiosity Corner* assume that essentially all children can succeed and that their cognitive, linguistic, and social development is mediated by their caregivers' and teachers' abilities to establish warm, nurturing relationships with them and to offer them stimulating experiences.

Curiosity Corner was designed to put into practice the findings of research on effective practices on all aspects of early childhood education: instruction, curriculum, classroom organization, assessment, accommodations for children with special needs, parent involvement, and professional development. It was designed as a comprehensive program that would anticipate all the ways in which at-risk children could fail and to provide prevention and early intervention to avoid negative achievement trajectories and increase the chances of positive trajectories. The underlying theory of action of the program is based on the Multidimensional Intervention Model that posits that it takes extensive, ongoing professional development on all aspects of instructional processes (curriculum and instruction, adaptation, time, assessment and parental involvement) to make significant differences in the achievement of at-risk children (Borman et al., 2007; Slavin et al., 2009). Figure 1 and the description that follows present the elements of the theory of action for the program.

Professional Development

Curiosity Corner provides a high level of on-site professional development, with initial training for all staff, and ongoing support from *Curiosity Corner.* See further details in the professional development section of this article.

Instructional Processes

Curriculum and Instruction. Curiosity Corner impacts quality of instruction on several dimensions. First, it is based on a com-

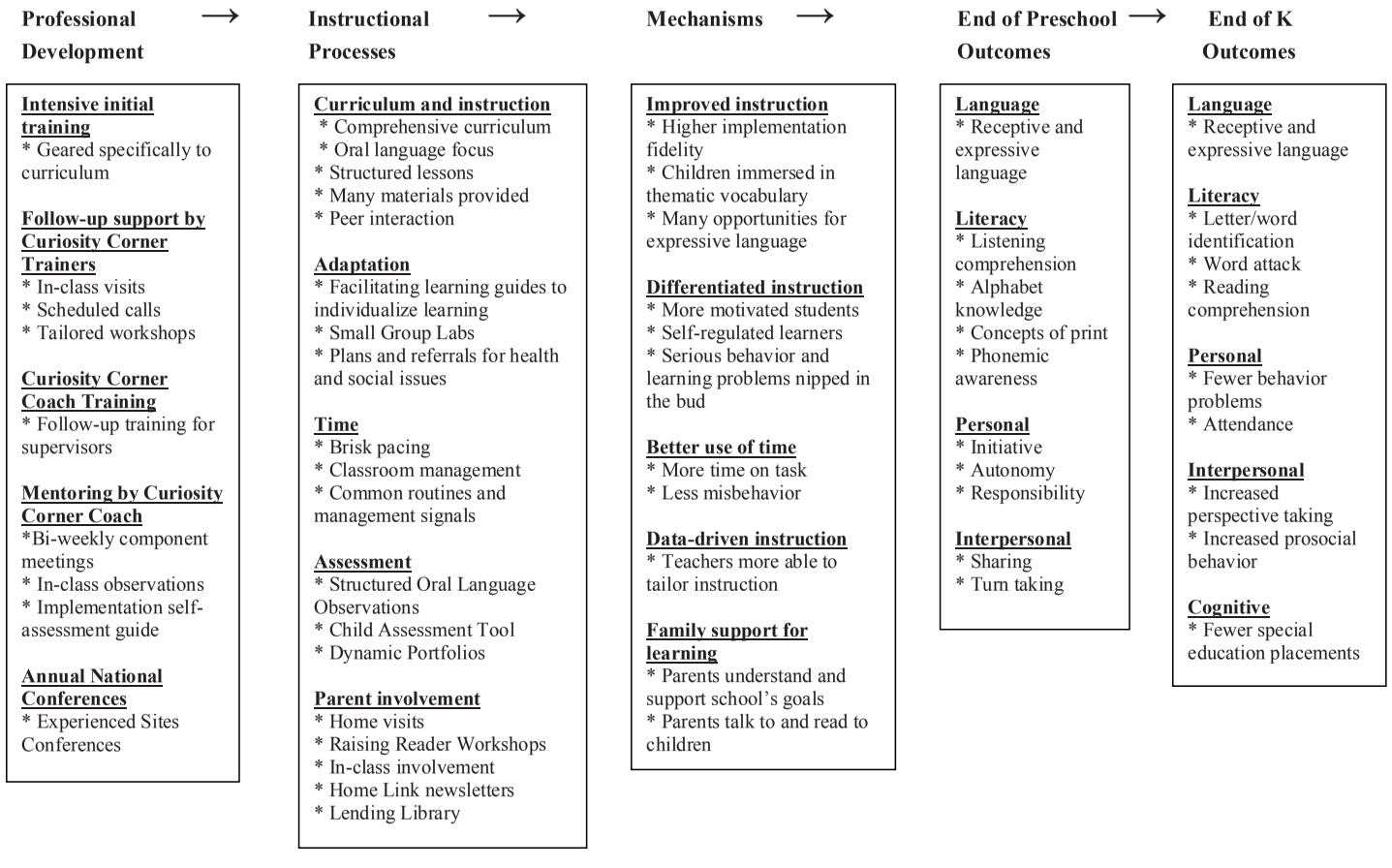

Figure 1. Multidimensional intervention model.

prehensive curriculum covering all areas of development, with a focus on oral language, to prepare children for success in school. Second, the key materials to implement the program are provided. Third, extensive, ongoing professional development is designed to help teachers implement the program with integrity.

Focus on Language. The highest risk factor for children's expressive language growth is poverty, with children from high-poverty homes consistently having weaker expressive language skills compared with children from more advantaged situations (Bowey, 1995; Chaney, 1994). Thus, one of the main thrusts of the *Curiosity Corner* curriculum is to improve children's expressive language abilities by enhancing the language-learning environment of preschool classrooms and increasing teacher-child and child-child interactions. Each thematic unit teaches children key vocabulary associated with the thematic concepts and is infused throughout every component of the program. Children's books, which the teachers read interactively with the children, are provided with each unit, to enhance children's vocabulary.

Curiosity Corner's approach to language learning is based on the social-interaction perspective of language development which assumes that language emerges from frequent, positive, responsive, verbal interactions between adults and children (Chapman, 2000). Research has shown that characteristics of caregivers' language associated with children's language growth include use of a more diverse vocabulary, longer utterances, and use of complex syntax (Hoff, 2003; Huttenlocher, Vasilyeva, Cymerman, & Levine, 2002). Thus, the detailed daily lessons are designed to guide teachers to interact with children using rich language.

Preschool children's expressive language contributes to later higher-level language and literacy achievements, including reading comprehension, decontextualized language skill, and metalinguistic awareness (Chaney, 1994; Huffman, Mehlinger, & Kerivan, 2000; Storch & Whitehurst, 2002; Whitehurst & Lonigan, 1998). Therefore, *Curiosity Corner* teachers are taught instructional strategies that maximize active teaching and learning, such as cooperative learning strategies (Rohrbeck, Ginsburg-Block, Fantuzzo, & Miller, 2003; Slavin, Hurley, & Chamberlain, 2003), which give children opportunities to try out their understandings and growing vocabulary in a safe, supportive environment.

Adaptation. Instructional quality depends on giving children content that is appropriate to their needs, and scaffolding their learning through interaction with more capable peers and adults. In the *Curiosity Corner* theme guides, teachers are provided suggestions for ways to adapt activities for children with a range of abilities, especially during the Learning Lab component. This allows teachers to focus instruction on the children's needs, remediate specific deficiencies, and challenge children who are functioning at a higher level than the rest of the class.

Time. In *Curiosity Corner,* teachers learn routines to improve their classroom management skills and make effective use of time, based on the work of Evertson, Emmer, and Worsham (2000). Furthermore, use of cooperative learning strategies increases time on task. The program also provides one-to-one instruction during Learning Lab time and targeted instruction during small-group instruction. Having children productively engaged much of the time should lead to more time on task and less misbehavior.

Assessment. Close monitoring of children's progress is a central element of *Curiosity Corner*. Children are observed and informally assessed on an ongoing basis as teachers construct a dynamic portfolio for each child. See details in the answer to the assessment question below. This ongoing monitoring of children's progress helps teachers tailor their instruction to the needs of the children.

Parental Involvement. Curiosity Corner sites are directed to have Solutions Teams, or a similar structure, that plan strategies for parent involvement, community involvement, classroom management, attendance, and outreach to other agencies to solve health and social problems (see details

below in response to the question about parental involvement).

The remainder of the paper addresses the eight questions for administrators to ask when making decisions about what programs to adopt (Frede & Ackerman, 2007).

How Does *Curiosity Corner* Define the Roles of the Teacher and the Child?

Reviews of different preschool programs for children at risk of school failure by Chambers, Cheung, and Slavin (2006) and others (Gilliam & Zigler, 2000; Gorey, 2001; Karweit, 1993) have found that preschool programs with a balanced focus, both on academic preparation and on broader cognitive and social activities, were more effective in the long run than purely academic programs or programs that provided very little structure. Preschools need to help prepare children for kindergarten by providing a solid foundation in oral language skills, alphabet knowledge, phonemic awareness, extensive background knowledge, in addition to self-care and social skills. There is no reason that exploratory, developmentally appropriate activities cannot be combined with academic preparation to give young children the best preparation possible for success in school and in life. *Curiosity Corner* was designed to achieve this balanced approach, with a combination of direct instruction and child-initiated activities; whole-group, small-group, and individual activities that focus on preparing children for school both academically and socially. The teacher's role varies throughout the day. During some components, teachers present information or read interactively to groups of children, thinking aloud to model how to solve problems. During other components, teachers facilitate children's learning, responding to the individual's child's needs and scaffolding their learning. The children's role is to engage interactively with the materials, adults, and their peers, sometimes taking the initiate to decide with whom and what they will do.

What Domains of Learning Are Addressed in *Curiosity Corner*?

Developed as a comprehensive program, *Curiosity Corner* aims to promote the development of the whole child. Alignments have been completed between *Curiosity Corner* and numerous state standards, invariably showing that the program meets or exceeds those standards. Program activities focus on each of the following nine domains: cognitive, creative, emotional/personal, interpersonal, language/literacy, mathematical, physical, science, and social studies.

Cognitive

Curiosity Corner draws on the idea that children learn by constructing their own knowledge. By manipulating concrete objects that are familiar to them and with the people around them, children build on and change their existing understandings. They are taught to see relationships between objects, to classify, and to see patterns. They participate in learning centers (Learning Labs) and interactive activities (e.g., Clues & Questions). Children have opportunities to work together to answer questions, act out stories, graph preferences, and create books. For example, in the *Bread and Butter* unit, children begin examining the type of bread that most of them eat at home and then compare it to other types of bread, such as bagels, pitas, and tortillas. By actually making bread, they experience the process first-hand, exploring the ingredients, measuring, mixing, and kneading.

Creative

Curiosity Corner offers opportunities for children to expand their creative abili-

ties in the areas of visual arts, music, movement, and drama. Through theme-related activities, children observe works of art, explore materials, and experiment with various techniques. Children use a variety of art materials such as paint, glue, and clay.

Children explore music through the songs they learn to sing and the variety of music that they listen and respond to. They experiment with various handmade and commercial musical instruments. The curriculum has both unstructured sociodramatic play in the Dramatic Play Lab and other labs and guided dramatization in activities such as acting out stories or situations.

Emotional/Personal

Young children need to learn to trust others, to gain autonomy, and to take initiative. *Curiosity Corner* begins each day with teachers welcoming the children, helping them feel like they belong in a caring community. *Curiosity Corner* provides structure and routine, with the goal of giving children a sense of security. It offers children opportunities to make choices about how they spend their time to encourage becoming self-regulated learners (Schunk & Zimmerman, 2003).

Interpersonal

In *Curiosity Corner,* children spend a great deal of time interacting with one another. Many partner and small-group activities are structured to require cooperation so that children can learn to share, take turns, negotiate, resolve conflicts, and collaborate in their play (Chambers, Patten, Schaeff, & Wilson Mau, 1996). By engaging in peer interaction, young children are taught to take another's perspective and become more prosocial in their behavior (Chambers, 1993). The more they are exposed to others' points of view, the more they come to see that there are different ways of seeing things, approaching problems, and interacting with people.

Language/Literacy

The focus of *Curiosity Corner* on children's oral language development is designed to help prepare children from economically disadvantaged environments for success in kindergarten. Children in *Curiosity Corner* classes are first taught to speak in simple sentences clearly enough to be understood by familiar adults and then to express themselves in more complex sentences that can be understood by anyone (Chambers, Chamberlain, Hurley, & Slavin, 2001).

In *Curiosity Corner,* children are exposed to many types of activities that promote their reading and writing abilities as well. They are introduced to letter names and sounds in the context of the themes, which makes this knowledge more meaningful. Children participate in activities that include conversing with teachers and peers, listening to interesting stories and poems, singing and chanting rhymes, acting out stories, and writing and drawing about their experiences.

Mathematical

Curiosity Corner offers opportunities for children to learn mathematical concepts connected to everyday life situations. With repetition of activities such as classifying, patterning, counting, and graphing children should develop mathematical skills. It is through the distributed practice of these skills, over and over again throughout the program, that children should internalize them. By modeling and thinking out loud as teachers solve simple problems, they model for children different ways of solving problems.

Physical

Children need daily opportunities to engage in gross motor play. They need to practice their locomotor, balance, and manipulation skills. In *Curiosity Corner's* Outside/

Gross Motor Play activities children move in different ways: balance both in place and when moving and manipulate balls, bean bags, scarves, hoops, and so forth. The total physical response experienced in some gross motor activities helps teach children thematic concepts. For example, in the farm animals unit, the children play the Farmer in the Dell, dancing in a circle and practicing the names of farm animals. Children also need ample opportunities to practice their fine motor skills. Activities such as cutting, folding, ripping, drawing, painting, writing, and gluing aim to develop children's small muscles.

Science

Many of the *Curiosity Corner* themes are based on scientific concepts such as animals (*Pet Parade)*, seasons (*Fall into Fall)*, nutrition (*Yum! Yum! Nutrition)*, transportation (*Here We Go!),* and growth (*Body Talk)*. Through active engagement with concrete materials, children are taught concepts in ways that children in the concrete operational phase of development should be able to understand. Children have the opportunity to explore scientific concepts with equipment such as magnets, scales, and magnifying lenses. They conduct simple experiments to help discover concepts such as sliding and rolling objects down an inclined plane and shaking cream to make butter. They observe the effects of natural phenomena such as the wind blowing streamers and pinwheels.

Social Studies

Curiosity Corner begins by introducing concepts that children are familiar with, such as families in *Fun with Families* and bread in *Bread and Butter.* Then, children experience concepts that are a bit removed from their immediate experiences, such as mapping their neighborhood in *Where We Live* and exploring new art techniques in *Art and Artists*. Many of the *Curiosity Corner* units are based on social science themes such as *Highlighting Heritage; Reuse, Reduce, Recycle;* and *Celebrate Curiosity.* The importance of community is stressed in most of the units to help children feel as if they belong and are valued members of their class, school, and neighborhood.

Does *Curiosity Corner* Provide Guidance for Differentiating Teaching for Students with Special Behavior, Linguistic, or Learning Needs?

The *Curiosity Corner* program is designed to be adaptable for children functioning at different levels and with a variety of needs. Children are introduced to a concept or skill initially, sing songs or chant rhymes related to the concept and engage in meaningful activities related to the concept. They usually revisit the concept, or skill later in the unit, in future units, and in the following year. Children are not expected to master concepts the first time they are exposed to them. They build their knowledge and expertise through repeated exposure to the concept or practice using the skill. Because children in any class will be at different levels in the different domains, *Curiosity Corner* provides activities at a variety of levels to meet the needs of the individual children in the class. Particularly during the self-directed Learning Lab time, teachers are provided with guidance in how to facilitate the learning of individual children who are functioning at different levels in different domains.

English Language Learners

If English language learners are going to be taught to read in English, as is the case for the majority of English language learners (ELLs) in the United States, participating in preschool programs that will provide them

the English vocabulary may help them succeed (Fashola, Slavin, Calderon, & Duran, 2000; Tabors & Snow, 2000). The vocabulary and complex syntax skills of low-SES preschoolers, particularly those of disadvantaged English language learners, have been found to be much lower than those of more advantaged children (Barnett, Tarr, & Frede, 1999; Espinosa, 2007). Such findings suggest the importance of designing preschool classrooms in which children are exposed to a language-rich environment with abundant opportunities for children to interact with teachers and peers. Children who have multiple exposures to vocabulary through book reading, creative play, writing, and concrete representations of vocabulary learn more than children who only participate in interactive book reading (Neuman, 1996; Wasik, Bond, & Hindman, 2006).

Because it provides children with multiple exposures to vocabulary in a variety of ways around a set of concepts that form a basic core of knowledge, *Curiosity Corner's* theme-based approach may be especially appropriate for low SES children and ELLs. Children interact around stories, hear poems, sing songs, chant rhymes, have discussions, and engage in concrete activities, all focused on common thematic concepts. Teachers use exaggerated gestures and facial expressions and recast children's one- or two-word responses to model elaborated speech and prompt children to repeat the elaborated response (Justice, Mashburn, Pence, & Wiggins, 2008). For example, after eating different kinds of bread in the *Bread and Butter* unit, the class makes a bar chart of the children's favorite kinds of bread. If a child responds with a one-word response such as "bagels" to the question about her favorite bread, the teacher would state "My favorite bread is bagels," and ask the child to repeat the sentence.

Children with Special Needs

Curiosity Corner is also implemented in inclusion classrooms and in self-contained classes for children with special needs. The program recommends that children with special needs be educated in an inclusive setting whenever possible and have access to all the resources necessary to address their individualized needs. Professional development is available to all *Curiosity Corner* teachers, master teachers, paraprofessionals, preschool administrative staff, and supervisors, in adapting and modifying the curriculum and designing individualized education programs for children with specific disabilities.

Does *Curiosity Corner* Have an Assessment System That Is Consistent with the Teaching Philosophy and Learning Content?

Most teachers find reporting to be the most challenging part of their job. Teachers need to report to parents or guardians on their children's progress several times a year. To be able to obtain as accurate as possible picture of each child, the *Curiosity Corner* program guides teachers to observe children systematically and to create and maintain a dynamic portfolio on each child that includes: the Child Assessment Tool, Structure Oral Language Observations, anecdotal records and other observations, samples of the child's work, photographs, and a narrative summary. Because children are continually growing and developing, all these items are dated and contribute to the portfolio, which changes over time as well.

The Child Assessment Tool (CAT) is a performance-based assessment that is aligned with the goals and objectives of *Curiosity Corner.* Designed to track the progress of young children's growth and development, it provides a rubric to evaluate children on each of the nine domains. The rating scale for each domain shows a progression of children's development over time. The CAT is designed to help teachers identify patterns of development and highlights areas where children might need additional support.

The data from the Structure Oral Language Observations (SOLOs) are also included in the portfolios. SOLOs are a set of 16 cards with directions to engage children in oral language activities related to the unit themes. SOLOs tap children's receptive and expressive language and their oral language production. Because oral language development is a key predictor of future reading ability and school success, it is a key element in the evaluation of the young child.

Conducting systematic observations regularly can help teachers identify the particular skills and strengths of each child and provides feedback on whether the activities teachers are providing are at a level at which most children can benefit. Samples and photographs of the child's artwork, dramatizations, writing, and other creations are included in the portfolios. These provide concrete evidence of the progress the child makes over time. A narrative summary of the portfolio provides the teacher's interpretation of the data, along with the implications for instruction and experiences planned to help the child reach his or her potential.

What Research Evidence Exists to Support the Value or Effectiveness of *Curiosity Corner*?

Chambers, Chamberlain, Hurley, and Slavin (2001)

The *Curiosity Corner* comprehensive preschool program was first piloted in winter, 1999, and then implemented and evaluated using a quasi-experimental design in 1999 to 2000 (Chambers et al., 2001). This year-long study had 316 three- and four-year-old children in 27 *Curiosity Corner* and 23 control classrooms matched on demographic characteristics in four New Jersey urban, high-poverty school districts. The evaluation of instruction found significantly higher ratings of *Curiosity Corner* classes on the Early Childhood Environment Rating Scales-Revised (ECERS-R; Harms, Clifford, & Cryer, 1998), in comparison to matched control classes.

The Peabody Picture Vocabulary Test-III (Dunn & Dunn, 1997) was administered as the pretest. The posttest was three scales from the Mullen Scales of Early Learning: Expressive Language (EL), Receptive Language (RL), and Visual Reception (VR) (Bradley-Johnson, 1997). ANCOVAs were computed with condition as the independent variable, the MSEL language scores as the dependent measures, and the PPVT-III pretest scores and age at testing as covariates.

Analyses were completed to separately examine the performance of 3-year-olds (n = 168) who attended *Curiosity Corner* or control classrooms. An ANCOVA, with age and PPVT-III as covariates, indicated that the difference between EL means for *Curiosity Corner* children and controls was significant, F (1,166) = 6.03, p = .015, with an effect size of +0.40. Nonsignificant differences also favored *Curiosity Corner* children on the RL but not on VR. The observed difference between the treatment groups for the 3-year-olds was not evident among the sample of 147 four-year-olds, F (1,145) <1.00, n.s. This small but rigorously designed pilot study provided the program with some helpful information regarding improvements to be made and although the sample sizes were small (and the study was therefore underpowered) there were some promising early literacy findings.

Preschool Curriculum Evaluation Research Consortium (2008)

With the increasing emphasis placed on evidence-based practices in education, the National Center for Education Research (NCER) in the U.S. Department of Education created the Preschool Curriculum Evaluation Research (PCER) Consortium to conduct rigorous, randomized evaluations of 14 different early childhood curricula on a wide variety of child outcomes. *Curiosi-*

ty Corner was one of the curricula evaluated. Independent contractors commissioned by NCER collected data on children's math, prereading, language, phonological awareness, social skills, and teacher's classroom practices. They collected data in the fall of preschool, the spring of preschool, and at the end of kindergarten. Detailed results of the PCER findings can be found in the final report published by NCER (PCER Consortium, 2008). The major findings for *Curiosity Corner* are summarized below.

In the *Curiosity Corner* evaluation, 18 sites in New Jersey, Kansas, and Florida were randomly assigned to implement *Curiosity Corner* or continue with the program and practice that they had been using. The control classes mostly were implementing teacher-developed curricula with a few sites implementing Creative Curriculum (Dodge, Colker, & Heroman, 2002). To avoid contamination, random assignment was done at the school level, with each school having one or two classes.

In the kindergarten year of the evaluation, the sample of schools went up to 69 schools in kindergarten. The sample of classrooms went from 31 preschool to 107 kindergarten classrooms. Data at the end of kindergarten were collected on 194 children from the original sample of 218.

Data were analyzed using repeated measures analyses and focused on the results of the differences between the covariate-adjusted means for the prekindergarten and kindergarten spring assessments (covariates for child outcomes: child gender, age, disability status as reported by parent, race/ethnicity, mother's education; covariates for classroom variables: teacher has a BA degree, previous teaching experience, teacher's race/ethnicity, child/adult ratio in classroom, average class size, city size, site). All analyses accounted for the nesting of children within classrooms and sites, and correlated repeated measures across two or three time points.

There were no differences found at the end of prekindergarten but at the end of kindergarten the independent evaluator concluded that *Curiosity Corner* had a statistically significant positive effect on reading relative to the control condition, based on analyses of the Test of Early Reading Ability, Third Edition (TERA-3; Reid, Hresko, & Hammill, 2001) and the Woodcock Johnson Letter-Word Identification (Woodcock, McGrew, & Mather, 2001), with a mean effect size of +0.43. Also, in terms of observations of classroom instruction the *Curiosity Corner* classrooms provided more opportunities for Book Reading than control classrooms (*ES* = +2.06). There were no statistically detectable differences on the Print and Letter Knowledge, Written Expression, Oral Language, Phonological Awareness, and Mathematics Concepts scales. The evaluators concluded that *Curiosity Corner* had a positive effect on language instruction relative to the control condition. The PCER evaluation did not find Curiosity Corner to have significant impacts on children's mathematics achievement, phonological awareness, nor on their social behavior.

These early rigorous studies indicate the potential of the *Curiosity Corner* comprehensive preschool program to promote the language and literacy of young children at risk for school failure. Evidence to date indicates the need to design and implement an efficacy trial with sufficient power to detect meaningful differences among preschoolers.

Is *Curiosity Corner* Appropriate for All Teachers, Regardless of Their Qualification? What Kind of Professional Development Is Required?

The National Research Council's *From Neurons to Neighborhoods* suggests that programs that combine child-focused educational activities with explicit attention to adult-child interaction patterns and relationship building have the greatest impact (Shonkoff & Phillips, 2000). The *Curiosity Corner* program is based on a constructivist

approach for the children, combined with direct instruction for the teachers, making an unusual combination of what we call prescribed flexibility. This means that teachers are explicitly guided in how to provide opportunities for children to construct knowledge through interactive experiences. It does not assume that all teachers have the time, education, experience, or resources to create a comprehensive, effective, preschool program from scratch. Each theme guide provides detailed daily lessons instructing teachers how to use the materials provided to offer children multiple opportunities to learn the core concepts and vocabulary. They are guided how to adapt the activities to the development levels of the children in their classes. The children are offered many opportunities to decide which activities they want to engage in. Teachers are encouraged to follow the program closely the first time they implement it so they can learn the processes underlying the program. Once they have the program under their belt, they can bring in more of their own ideas and resources to enrich the curriculum. Thus, the program is somewhat prescriptive for the teachers in terms of the themes and activities they offer, especially in the first year, but flexible in that the teachers adapt the activities for the children in their classes and that the children don't necessarily engage in all the activities that the teachers offer.

Staffing

A comprehensive reform program as complex as *Curiosity Corner* requires considerable support and training. Adequate staff-child ratios are necessary to ensure that children receive the attention that they need to reach their full potential, both cognitively and emotionally. It is recommended that each class of 15 children has one trained early childhood educator and one assistant. Also, this ratio is important to enable the adults to provide comfort, consistency, and security to promote children's emotional wellbeing (Howes & Smith, 1995).

School districts are directed to support the implementation of the program with a *Curiosity Corner* Coach for every 12 preschool classes. The *Curiosity Corner* Coaches help teachers prepare materials for the program, observe, and mentor the teachers. They offer workshops on issues that arise in implementing the program, organize sessions offered by the *Curiosity Corner* trainers, and coordinate observation visits by the trainers. They keep abreast of developments in the program, and coordinate with the schools/centers, districts and program trainers.

Professional Development

All staff members, including teachers, assistants, and administrators, receive two days of initial training and then ongoing follow-up in-class visits and workshops by a *Curiosity Corner* trainer. The workshops are tailored to the needs of particular groups of teachers and include topics such as classroom management and portfolio assessment. Neuman (1996) found this type of intervention doubled literacy interactions in classrooms and improved children's performance on a host of literacy factors compared to children whose teachers did not receive such training.

Each school or agency has *Curiosity Corner* Coaches to support teachers implementing the program. Principals/Directors and *Curiosity Corner* Coaches receive leadership training to help them learn how to best support their staff in implementing the program, use data effectively, and make effective use of resources. Coaches visit teachers' classes frequently, organize regular meetings to review children's progress, help set goals for children's achievement, help create individual, class, and schoolwide plans.

Implementation is monitored by the trainer and the *Curiosity Corner* Coach, observing classes and completing Implementation Rating Guides. Aspects observed include factors that deal with setting up an effective classroom environment, classroom management, and so forth. Annual national

conferences supplement on-site professional development by providing opportunities for sharing among leaders from many sites, by targeting particular issues, and sharing updates.

Are Specific Materials Required to Implement *Curiosity Corner*?

There are many stimulating, developmentally appropriate approaches to early childhood education, yet, often, teachers do not have the expertise, time, or resources to acquire the materials necessary to offer the activities that are required to put those programs in place. This is one way *Curiosity Corner* differs from most early childhood curricula. The program provides weekly theme guides, more than 150 children's books, manipulatives, games, and other supplies to supplement the basic supplies typically present in an early childhood classroom. The children's literature that comes with the program combines classic stories, new books that include a diversity of races and cultures, and expository concept books, all related to the thematic concepts. These materials make implementation of the activities much easier.

Curiosity Corner is less open ended than some more unstructured project-based curricula. One of the strengths of the program, particularly for less experienced teachers, is that it is not just a manual with a set of general guidelines about the types of activities teachers should do with the children in their classes. It provides detailed daily lessons in the weekly theme guides and provides most of the specific materials that are required for the thematic activities. This makes it possible to provide more explicit support for the teachers. The program includes: a *Teacher's Manual* and 38 weekly *Theme Guides* that provide teachers with appropriate objectives and daily lessons; theme-related children's literature, curricular materials, (e.g., puzzles, games, DVDs); and activities and materials to support family involvement and education, (e.g., daily HomeLink activities, a weekly family newsletter, family workshops). All this structure and support is designed to make it more feasible for an average teacher to implement the program.

Does *Curiosity Corner* Provide Guidance for Such Services as Parent Involvement and the Transition to Kindergarten?

Recognizing that families are children's first educators and when families are involved in their children's education, children gain in self-esteem, motivation, and achievement (Stevens, Hough, & Nurss, 1993), *Curiosity Corner* emphasizes parent involvement and parent education in a component called Home Links. Some of the Home Links activities include home visits; the Home Link Page, a weekly newsletter; a classroom lending library, with Book Bags containing stories and activities for children and families; "Ready to Learn" workshops and video; and family involvement to support children's learning. Many of the materials are available in Spanish and sites are encouraged to translate family materials in the home languages of their children. Preschool teachers are encouraged take their children to visit the kindergarten classrooms, if at all possible for them to prepare them for the new environment and meet their new teachers.

Conclusion

This paper presents an approach to early childhood education for disadvantaged young children that has the potential to substantially improve their chances of achieving success in school. The outcomes of the research on *Curiosity Corner* indicate that it is likely the strong emphasis on oral language development in the program that increases children's vocabulary, helping them understand the words and texts that they were

exposed to when learning to read. This exposure to oral language may be particularly important for children at risk of school failure due to poverty, because they are less likely to receive this exposure outside of school. Continued research on comprehensive programs, such as *Curiosity Corner,* will provide the evidence as to how we can best eliminate the achievement gap in our country.

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