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PRE-KINDERGARTEN: RESEARCH-BASED RECOMMENDATIONS FOR DEVELOPING STANDARDS AND FACTORS CONTRIBUTING TO SCHOOL READINESS GAPS

At a Glance

States across the country are developing pre-kindergarten standards that articulate expectations for preschooler's learning and development and define the manner in which services will be provided. There are two different types of standards: student outcome standards and program standards. Student outcome standards define the knowledge and skills children are expected to demonstrate by the end of their preschool year. Program standards describe characteristics of the preschool program, such as required teacher qualifications and student-teacher ratio. This Information Capsule provides a summary of research-based recommendations for policymakers and educators who are developing each type of standard.

This paper also reviews factors that contribute to gaps in children's preschool readiness. The factor that has been found to correlate most highly with preschool learning disparities is family income level. Children's home learning environment, parents' level of educational attainment, ethnic and cultural influences, as well as parental beliefs and behaviors are also related to school readiness and school performance outcomes. However, since most of these factors are strongly tied to socioeconomic status, researchers have concluded that income level is the most powerful predictor of children's educational success. A brief discussion of the research, indicating that participation in high-quality preschool programs can significantly reduce early learning disparities by diminishing the negative effects of family and environmental risk factors, is included. Finally, a description of Miami-Dade County Public Schools' pre-K programs is provided.

Every state in the country has developed or is in the process of developing pre-kindergarten (pre-K) standards. Educators are coming under increasing pressure to clearly articulate what children should know and be able to do before they enter kindergarten and to spell out the minimal criteria needed to ensure that pre-K programs will be effective (Barnett et al., 2011; Bodrova et al., 2004; Scott-Little et al., 2003).

According to the National Governors' Association and the Council of Chief State School Officers, which coordinated the development of the nationwide K-12 common core standards, there are no plans to create a similar set of common core standards for pre-K (Zubrzycki, 2011). As expected, the scope and level of detail provided in early learning standards vary

significantly from one state to the next and from one subject area to another. However, associations such as the National Institute for Early Education Research (NIEER), the National Association for the Education of Young Children (NAEYC), and the National Association of Early Childhood Specialists in State Departments of Education (NAECS/SDE) agree that pre-K standards should reflect the population of children being served. They believe that pre-K standards are most effective when they accommodate variations in children's cultures and communities (Bodrova et al., 2004; NAEYC & NAECS/SDE, 2002a).

Pre-K standards allow educators to:

- Focus attention on important aspects of children's growth and development.
- Foster the development of a curriculum for young children.
- Provide a common set of expectations for child outcome goals.
- Ensure continuity between the skills children are building in pre-K and the expectations for their further development as they transition to kindergarten and beyond.
- Guide decisions about child assessment practices.
- Enhance teaching practices, curriculum, and professional development.
- Foster accountability among teachers for what they are teaching and what young children are learning.
- Educate parents and enhance public understanding of early development and learning (Daily et al., 2010; Carter, 2006; Bodrova et al., 2004; Scott-Little et al., 2003).

Pre-K standards present special considerations related to both the nature of early development and learning and the characteristics of early childhood programs. Some educators have questioned the appropriateness of pre-K standards and pointed out the potential drawbacks of such documents. For example:

- Young children's irregular development patterns make the assessment of specific academic skills difficult. Preschool children's development is often uneven across developmental areas, with development in one area outpacing development in other areas. Furthermore, development is often sporadic. A child may make relatively little progress in one developmental area for a significant period of time and then rapidly master a series of skills (Zubrzycki, 2011). Scott-Little and colleagues (2003) argued that "standards for this age are counter to what we know about children's growth and development."
- A position paper released by the National Association for the Education of Young Children and National Association of Early Childhood Specialists in State Departments of Education (2002a) warned that pre-K standards may lead to unrealistic expectations. Their paper stated: "When a standard is written to cover a wide age spectrum . . . adults may assume that the youngest children should be accomplishing the same things as the oldest children, leading to frustration for both the youngest children and their teachers." Conversely, the statement continued, "with such broad age ranges for standards, adults may also underestimate the capacities of older children."
- Children may be unfairly penalized or excluded from needed services and supports based on the extent to which they meet the established standards (Scott-Little et al., 2007; NAEYC & NAECS/SDE, 2002a).
- Children, particularly those with disabilities and culturally and linguistically diverse children, will be labeled as failures if they do not exhibit the skills and knowledge described within the standards (NAEYC & NAECS/SDE, 2002a).

- Pre-K standards place the responsibility for meeting expectations on children rather than on the adults who are responsible for children’s growth and development (NAEYC & NAECS/SDE, 2002a).
- Standards may jeopardize high-quality pre-K instruction by creating inflexible programs and encouraging teachers to “teach to the test” (Carter, 2006; NAEYC & NAECS/SDE, 2002a).

Researchers and policymakers note that it is important to distinguish between two different types of standards: student outcome standards and program standards. Student outcome standards define the knowledge and skills children should demonstrate at the end of their preschool experience and upon kindergarten entry. Program standards describe characteristics of the program, such as required teacher qualifications, classroom size, and student-teacher ratio, that are believed to contribute to positive child outcomes (Scott-Little et al., 2007; Bodrova et al., 2004; NAEYC & NAECS/SDE, 2002a).

STUDENT OUTCOME STANDARDS

Student outcome standards are formal descriptions of what is expected for children’s growth and development. Based on research conducted by associations such as the National Institute for Early Education Research, the National Association for the Education of Young Children, and the National Association of Early Childhood Specialists in State Departments of Education, the following recommendations have emerged for policymakers and educators who are developing student outcomes standards.

- **Standards include all domains of learning.** Pre-K standards should be organized around all areas of early development and learning, including language, literacy, mathematics, science, social studies, creative arts, social and emotional development, approaches to learning, and physical health and development (Daily et al., 2010; Rhode Island Kids Count, 2005; Bodrova et al., 2004; New York City Department of Education, 2003; NAEYC & NAECS/SDE, 2002a).
- **Standards are tied to classroom practices that promote learning.** Standards should be tied to classroom practices and teaching strategies that are relevant to young children’s interests and abilities. Standards should encourage children to develop knowledge and skills through language-rich interactions and relationships with adults and peers; facilitate the development of a well-planned curriculum that offers depth, choice, and exploration; and promote an integrated approach to teaching and learning (NAEYC & NAECS/SDE, 2002b).
- **Standards are flexible enough to accommodate variations among students.** Pre-K standards must allow teachers to embed culturally and individually relevant experiences into the curriculum. The content of pre-K standards, and expectations for children’s mastery of the standards, must consider variations among students - community, cultural, linguistic, and individual - as well as the different life situations and experiences that influence children’s readiness for school (NAEYC & NAECS/SDE, 2002b).

The National Institute for Early Education Research reported that there is great variation in how and when preschool children master the same knowledge and skills. They recommend

that standards accommodate children's learning strengths, needs, and interests wherever they are on the developmental continuum, rather than trying to speed up or slow down their learning (Bodrova et al. 2004).

- **Standards are evidence-based.** The content and desired outcomes of pre-K standards should be based on research into the processes, sequences, and long-term consequences of early learning. States should also develop a systematic approach to reviewing and revising standards to ensure that they reflect the most recent research and practice (Bodrova et al., 2004; NAEYC & NAECS/SDE, 2002a). The National Institute for Early Education Research cautioned that when pre-K standards are not based on research, but instead on the subjective opinions of early childhood educators or the academic content taught in higher grades, the resulting standards tend to either underestimate or overestimate the learning potential of young children (Bodrova et al., 2004).
- **Pre-K standards are not merely simplified versions of K-12 standards.** Pre-K standards should create a continuum that flows from pre-K through high school graduation or beyond rather than relying on simplified versions of standards for older children. Young children's learning is heavily dependent on the development of language, thinking, and cognitive and socio-emotional skills that are taken for granted in higher grades where the primary emphasis is placed on content. In early childhood, the development of these foundational skills is just as important as mastery of content matter (Bodrova et al., 2004; NAEYC & NAECS/SDE, 2002b).
- **High quality and varied instruments are used to assess children.** There are many reasons for assessing young children, such as determining appropriate instruction on an individual basis; screening for developmental delays; identifying children who are at risk for later academic failure and need early intervention; ensuring program accountability; and monitoring the aggregate readiness of kindergarten children to inform decisions about policy and funding (Daily et al., 2010; Finlayson, 2004).

Assessment presents one of the biggest challenges for educators when they introduce preschool standards. Many early childhood experts agree that most standardized instruments cannot yield valid and reliable data on young children's learning outcomes because their development tends to be rapid and episodic. Therefore, an assessment given at one point in time is not likely to provide a complete picture of their knowledge and skills. Because the assessment of young children presents so many challenges, experts advise that standardized tests be used sparingly. They suggest that because young children often represent their knowledge better by showing than by talking or writing, naturalistic, observational assessment methods, rather than paper and pencil tests, are more appropriate for assessing their emerging knowledge and skills. In addition, the assessment system should ensure that single test scores are not used to categorize children (Daily et al., 2010; Rhode Island Kids Count, 2005; Bodrova et al., 2004; NAEYC & NAECS/SDE, 2002b).

In order for assessments to be reliable and valid measures of students' mastery of skills, researchers have provided the following guidelines:

- Assessments that are used to determine mastery of standards should be closely aligned with the curriculum (Bodrova et al., 2004).

- Assessments should not be used for interchangeable purposes. For example, readiness screeners should not be used for placement decisions, but to predict which children are ready for kindergarten entry and which children will profit from remedial or compensatory education programs (Ackerman & Barnett, 2005; Finlayson, 2004).
- Assessments should be responsive to children's cultural and linguistic diversity (Daily et al., 2010; Ackerman & Barnett, 2005).
- Children should not be asked to demonstrate isolated skills out of context or outside of their normal learning environment (Ackerman & Barnett, 2005).
- Educators should not rely solely on assessment to judge children's mastery of skills. A meta-analysis of 70 longitudinal studies concluded that preschool readiness screenings predicted only about 24 percent of the variability in children's kindergarten and first grade academic and cognitive competence, and 7 percent of the variability in their social and behavioral competency (LaParo & Pianta, 2000). Studies confirm that children's health and nutrition and a variety of family background characteristics significantly affect their knowledge, skills, and behavior, and create large variations in their rates of development and learning (Ackerman & Barnett, 2005; Bodrova et al. 2004).
- Information gained from assessments should not be used to penalize or exclude children from needed services and supports. Assessment and accountability systems should never be used to rank or sort students, or label them as failures. (Scott-Little et al., 2003; NAEYC & NAECS/SDE, 2002a).
- **There are a limited number of meaningful standards.** Researchers suggest that early childhood educators and policymakers identify a reasonable number of pre-K standards, representing the expectations and outcomes that are deemed to be critical for later development. They caution that it is important to make strategic selections because long lists of standards and indicators can overwhelm school staff, families, and community members (Rhode Island Kids Count, 2005; Bodrova et al., 2004).
- **Multiple stakeholders are included in the development of standards.** Effective preschool standards are developed through an informed, inclusive process. This process should involve multiple stakeholders, including families, community members, early childhood educators, special educators, and other professional groups. Research indicates that it is important to engage families and community members in discussions that help to shape preschool standards so that these standards represent the values of the local community. Including community members in the development of standards also educates them about the early learning process and expectations for children's educational outcomes (Bodrova et al., 2004; NAEYC & NAECS/SDE, 2002a).
- **Ongoing support is provided to staff and families.** Efforts to create pre-K standards should be accompanied by in-depth professional development, coaching, and mentoring for teachers and administrators. Professional development experiences should ensure that the standards are clearly understood and can be implemented effectively (Bodrova et al., 2004; NAEYC & NAECS/SDE, 2002a).

Research also indicates that pre-K standards are most effective when parents are included as key partners in helping children develop the skills outlined in the standards. Families

should be provided with activities and resources to support the educational experiences they engage in with their children (Rhode Island Kids Count, 2005; NAEYC & NAECS/SDE, 2002b).

PROGRAM STANDARDS

Many states and school districts also establish pre-K program standards that define how services will be provided. These standards focus on variables such as teacher qualifications, class size, and teacher-student ratio. The research on program standards has found that certain program characteristics are positively associated with children's social and academic outcomes (Albert Shanker Institute, 2009; Scott-Little et al., 2007; Bogard & Takanishi, 2005; Magnuson & Waldfogel, 2005).

Since 2003, the National Institute for Early Education Research (NIEER) has published *State Preschool Yearbooks*, a series of annual reports profiling state-funded pre-K programs in the U.S. As part of this project, the Institute created a Quality Standards Checklist, detailing the minimum program standards needed to operate quality pre-K programs. Although the benchmarks against which NIEER evaluates state pre-K programs are not guarantees of quality, they are consistent with practices that studies have found to be highly effective (Barnett et al., 2011). NIEER program standards include:

- **Pre-K programs are guided by comprehensive early learning standards.** NIEER believes that defining the desired content and outcomes of young children's education can lead to greater opportunities for positive development and learning in the pre-K years. Consistent with NIEER's position, the National Association for the Education of Young Children and the National Association of Early Childhood Specialists in State Departments of Education (2002a) maintain that early learning standards are a valuable part of a comprehensive, high-quality system of services for young children.
- **Pre-K classrooms are led by highly trained teachers with expertise in early childhood education.** Specifically, NIEER states that lead teachers should have a bachelor's degree, as well as specialized pre-K training, and assistant teachers should have a Child Development Associate (CDA) certificate or the equivalent. Studies have reported that teacher education and training have a strong influence on the quality and effectiveness of pre-K programs. Pre-K teachers must be knowledgeable about the developmental characteristics of children throughout this age span, and this knowledge should contribute to their implementation of a sequenced curriculum and their use of appropriate pedagogical techniques and assessments (Frede & Barnett, 2011; Gayl, 2008; Ackerman & Barnett, 2006; Bogard & Takanishi, 2005; Future of Children, 2005).
- **Teachers complete at least 15 hours of professional development each year.** Researchers have concluded that effective pre-K programs provide teachers with high levels of initial training, followed by ongoing opportunities to engage in meaningful professional development activities. Teachers must have a full understanding of the standards and how to link them to curriculum and assessment. Educators should be provided with opportunities to reflect on their practice, strategize with experts on improvements, and adjust their pedagogical approaches to meet the needs of children (Ramey & Ramey, 2010; Ackerman & Barnett, 2006; New York City Department of Education, 2003).
- **Class size is 20 students or less.** Research has demonstrated that smaller preschool class sizes are tied to increased levels of student achievement. When classes are smaller

(no more than 20 children), pre-K teachers have been found to engage in more stimulating, responsive, and supportive interactions and provide children with more individualized attention. They also spend less time managing behavior and more time engaged in educational activities (Gayl, 2008; Ackerman & Barnett, 2006; Future of Children, 2005; New York City Department of Education, 2003).

- **The teacher-student ratio is 1:10 or better.** Studies indicate that a high ratio of adults to children (1:10) in the classroom is related to higher levels of achievement and more positive behavioral outcomes (Gayl, 2008; Bogard & Takanishi, 2005; Future of Children, 2005). The Pew Charitable Trust (2005) reported that favorable staff-child ratios allow teachers to be more supportive of children's learning styles, guide children's social interactions, and encourage exploration and problem-solving.
- **Students are screened for vision, hearing, and health problems, and referred to at least one supportive service agency.** Matthews and Ewen (2006) reported that pre-K children who have access to comprehensive services such as medical care and mental health services learn at faster rates than those without such access. Effective pre-K programs provide students with vision, hearing, and dental screenings and ensure that their immunizations are up-to-date. If needed, families should also be referred to appropriate supportive service agencies, such as free or low-cost medical centers, community mental health facilities, and government income assistance agencies.

Hair and colleagues (2006) developed school readiness profiles for a nationally representative sample of over 17,000 children entering kindergarten. They identified four distinct school readiness profiles, one of which was children who were classified as having below average health and physical well-being. Children's school readiness profiles were found to predict differential academic and social outcomes throughout the early years of schooling. Results indicated that children who fit the "health risk" profile were more likely to be from families with multiple socioeconomic disadvantages. After holding a host of individual, family, and classroom characteristics constant (such as gender, ethnicity, birth weight, multiple measures of socioeconomic status, kindergarten classroom size, and kindergarten teacher qualifications), the researchers found that children included in the "health risk" profile had lower levels of performance on all outcome measures at the end of first grade, including reading and mathematics assessments, as well as measures of social and emotional development.

- **Programs offer children at least one meal each day.** Studies have found a strong connection between children's nutrition and their ability to function in classroom settings (Fitzgerald & Carolan, 2011). Brown and colleagues (2008) reviewed over 100 published research articles and concluded that serving breakfast to school children who don't get it elsewhere significantly improves their cognitive and mental abilities, enabling them to be more alert, pay better attention, and perform at higher levels on tests in content areas such as reading and mathematics. The researchers also found that children who ate breakfast were sick less often; had fewer problems associated with hunger, such as dizziness, lethargy, and stomach aches; and exhibited greater cooperation, discipline, and interpersonal behaviors than their peers who had not eaten breakfast.
- **Programs are monitored through regular site visits from state education agencies.** NIEER states that regular monitoring of pre-K programs leads to more informed decisions about programs, policies, and investments (Barnett et al., 2011).

As can be seen in Table 1 below, the number of states meeting each of NIEER’s quality program benchmarks during the 2010-2011 school year varied depending on the specific benchmark. For example, 49 of the 51 states (including the District of Columbia) developed comprehensive early learning standards for their pre-K programs. However, only 16 states required assistant teachers to hold a Child Development Associate certificate or equivalent. Five states met fewer than one-half of the 10 benchmarks (including Florida, which met only three benchmarks: comprehensive early learning standards, class size of 20 or lower, and site visits).

Table 1. NIEER Quality Standards Criteria and
Number of States Meeting Benchmarks, 2010-2011

NIEER Quality Pre-K Program Benchmark	Number of States Meeting Benchmark*
Comprehensive Early Learning Standards	49
Teacher has a bachelor’s degree	29
Teacher has specialized pre-K training	45
Assistant teacher has CDA or equivalent	16
Teachers complete 15 hours of professional development each year	43
Class size is 20 or lower	45
Staff-child ratio is 1:10 or better	45
Students receive vision, hearing, and health screenings and receive at least one supportive service referral	37
Students are offered at least one meal per day	24
State education agencies monitor pre-K programs through regular site visits	35

- Based on a total of 51 state-funded pre-K initiatives.
- Source: *The State of Preschool 2011* (Barnett et al., 2011).

PRE-KINDERGARTEN READINESS GAP

Studies indicate that disadvantaged children are more likely to enter preschool with lower levels of academic and language skills, greater social and emotional difficulties that interfere with learning, and more health problems (Education Week, 2011; Le et al., 2006; Sadowski, 2006; Ackerman & Barnett, 2005; Vandivere et al., 2004). The factor that has been found to correlate most highly with preschool learning disparities is family income level. Children’s home

learning environment, parents' level of educational attainment, ethnic and cultural influences, as well as parental beliefs and behaviors are also related to school readiness and school performance outcomes. However, since most of these factors are strongly tied to socioeconomic status, researchers have concluded that income level is the most powerful predictor of children's educational success (Rodriguez & Tamis-LeMonda, 2011; Webley, 2011; Daily et al., 2010; Sadowski, 2006; Finlayson, 2004; Lara-Cinisomo et al., 2004; Lee and Burkham, 2002).

Following is a brief description of factors that contribute to gaps in children's preschool readiness.

- **Income Level.** Higher-income families are much more likely to enroll their children in preschool programs. The National Institute for Early Education Research reported that at age 4, enrollment in pre-K is about 65 percent for the lowest income families and 90 percent for the highest income families. At age 3, when state-funded pre-K is rarely provided, enrollment is only about 40 percent for low-income and moderate-income families, while it is 80 percent for high-income families (Barnett et al., 2011).

Studies have found that socioeconomic status contributes significantly to early disparities in critical areas such as cognitive development, social and emotional development, and health status. Children living in low-income families, for example, often have fewer educational resources at home, in addition to poor health care and nutrition. For children raised in low-income homes, learning gaps begin to emerge as early as nine months and continue to widen each year (Education Week, 2011; Kupcha-Szrom, 2011; Webley, 2011; Dailey et al., 2010; Albert Shanker Institute 2009; O'Brien & Dervarics, 2007; Le et al., 2006; Sadowski, 2006).

Researchers from RAND Corporation found that residence in low-income neighborhoods was particularly stressful for many young children and led to behavior problems that impeded school readiness. The researchers studied children from 65 Los Angeles neighborhoods and found that neighborhood poverty was a strong predictor of behavioral problems among young children. Children living in poor neighborhoods were observed to be significantly more likely to exhibit both anxious and aggressive behavior (Lara-Cinisomo et al., 2004).

- **Home environment.** Researchers agree that parents play a primary role in every area of children's development. Numerous studies have linked the scores children receive on measures of school readiness to the availability of educational resources and the frequency of learning activities that occur in children's home environment. Children who do not have access to strong home learning environments have been found to be more likely to have delays in language and literacy skills than children who are exposed to more learning experiences in the home. The home learning environment consists of resources and activities that include the availability of children's books and other educational materials, time spent reading to children, exposure to frequent and varied adult speech, visits to the library, and the amount of television that is permitted (Education Week, 2011; Rodriguez & Tamis-LeMonda, 2011; Rhode Island Kids Count, 2005; Finlayson, 2004; Lara-Cinisomo et al., 2004).
- **Parents' level of educational attainment.** Some studies have found that gaps in pre-K readiness are related to parents' level of educational attainment (Rodriguez & Tamis-

LeMonda, 2011; Rhode Island Kids Count, 2005; Zill & West, 2001). RAND Corporation's study of children from 65 Los Angeles neighborhoods found that children whose mothers had not completed high school had less access to books at home, were less likely to be read stories, and were less likely to visit the library regularly. The researchers concluded that children of poorly educated mothers were at a disadvantage and thus an important target group for participation in preschool programs (Lara-Cinisomo et al., 2004).

Finlayson (2004) found a strong relationship between parents' levels of educational attainment and their ratings of their children's school readiness. She suggested that parents with higher levels of educational attainment have a better understanding of what is expected of their children when they enter school and also have the resources available to promote their children's school readiness.

- **Ethnicity.** Sizeable ethnic achievement gaps exist by the time children enter kindergarten. Studies have documented that on average, Black, Hispanic, and American Indian children demonstrate significantly lower reading, mathematics, and vocabulary skills at school entry than White and Asian American children. However, as researchers have pointed out, it is difficult to separate the effects of income and ethnicity on school readiness because income level and ethnicity are so highly correlated (Sadowski, 2006; Future of Children, 2005).

Studies have found differences in preschool enrollment rates by ethnicity. For example, NIEER's *The State of Preschool 2011* report stated that Hispanic children have the lowest rates of preschool enrollment among the major ethnic groups. Hispanics are only somewhat less likely to attend preschool at age 4 than Black and White students because of their high public program enrollment, but are far less likely than other children to attend preschool at age 3 (Barnett et al., 2011). However, public funding of early education programs appears to be reducing ethnic and racial enrollment gaps. For example, Magnuson and Waldfogel (2005) concluded that Head Start has played an important role in equalizing rates of Black and White children's participation in early education. They estimated that the Black-White test score gap at school entry might be as much as 24 percent larger in the absence of Head Start.

In general, children born to immigrant parents are less likely to participate in preschool programs than children of U.S.-born parents. They are also more likely than children of U.S.-born citizens to live in households characterized by poverty, low parental educational attainment, and low maternal employment (Matthews & Ewen, 2006).

RAND Corporation's study of children from 65 Los Angeles neighborhoods found that Black and Hispanic children and children who had immigrant parents scored lower on reading and math tests than other children. Most importantly, however, when the researchers controlled for family income level, they found that ethnicity and immigrant status were not important predictors of school readiness (Lara-Cinisomo et al., 2004).

Brooks-Gunn and Markman (2005) reported that the frequency of certain parenting behaviors, those often linked with school readiness, are lower for Black and Hispanic mothers than for White mothers. Most striking were differences in language use. Black and Hispanic mothers were observed to talk less with their young children than were White mothers and were also less likely to read to them daily. The researchers found that when the frequency of these parenting behaviors was controlled, gaps in school readiness decreased by 25 to 50 percent.

- **Health.** The available research indicates that health is an important determinant of children's success in school. The absence of basic health care places many children at risk for academic failure at an early age. Poor children are less likely than higher-income children to have access to health care and suffer from a wide array of chronic health problems that affect school readiness, including ear infections, digestive disorders, asthma, tooth decay, and allergies. Low-income children are also more likely to have been low birth weight infants and suffer from poor nutrition. Researchers have therefore concluded that health services offered as part of preschool programs play an important role in improving the performance of disadvantaged children. In addition, programs that offer children at least one healthy meal each day reduce the number of undernourished preschool children (Barnett et al., 2011; Hair et al., 2006; Currie, 2005; Reichman, 2005; Finlayson, 2004).

PARTICIPATION IN PRE-K PROGRAMS NARROWS ACHIEVEMENT GAP

Research has found that participation in high-quality preschool programs can significantly narrow early learning disparities by diminishing the negative effects of family and environmental risk factors (Ackerman & Barnett, 2005; Rhode Island Kids Count, 2005; Lara-Cinisomo et al., 2004; Magnuson et al., 2004). Gormley and colleagues' (2008) study of Tulsa, Oklahoma preschool programs found that participation in a pre-K program was a more powerful predictor of pre-reading and pre-writing test scores than gender, ethnicity, income level, mother's level of education, or whether the biological father lived at home.

The positive impact of pre-K programs has been found to be even more pronounced for disadvantaged children (Ackerman & Barnett, 2005; Lara-Cinisomo et al., 2004). Magnuson and colleagues (2004) reported that preschool programs had the greatest impact on disadvantaged children, defined as those who were living in poverty and had mothers who did not graduate from high school, speak English, or were single parents. On average, disadvantaged children who did not participate in preschool programs scored in the 33rd percentile on kindergarten assessments of reading, while disadvantaged children who attended preschool scored in the 44th percentile. In addition, the preschool advantage was found to last through at least first grade. Although kindergarten reading and mathematics scores were higher for children participating in all types of preschool, the largest benefits were noted for those children who attended state-funded pre-K programs. Barnett and colleagues (2004) hypothesized that this difference in outcomes was related to the fact that teachers in state-funded pre-K programs are required to obtain a bachelor's degree related to early childhood more frequently than teachers in private preschool programs or Head Start. State-funded programs may also have lower student-teacher ratios or implement a higher quality curriculum. [Note: The study also found that children who attended preschool had more behavioral problems than children who did not attend preschool, but this pattern was not observed among children who attended pre-K programs in the same schools where they attended kindergarten.]

Researchers have concluded that the most promising strategy for narrowing early learning gaps is to increase access to high-quality preschool programs for all disadvantaged three- and four-year-old children. They maintain that increased access to preschool programs would measurably boost the achievement of Black and Hispanic children, thereby helping to reduce early learning disparities (Future of Children, 2005; Rouse and colleagues, 2005). Magnuson & Waldfogel (2005) reported that making preschool enrollment universal for 3- and 4-year-old children in poverty while simultaneously increasing pre-K program quality would close up to 20 percent of the Black-White school readiness gap and up to 36 percent of the Hispanic-White gap.

ON A LOCAL NOTE

In November 2002, Florida's voters passed a constitutional amendment to offer free, voluntary pre-K programs to every four-year-old in the state, resulting in the Voluntary Prekindergarten (VPK) Education Program. The VPK program began operating across the state in 2005 (Barnett et al., 2011).

Miami-Dade County Public Schools (M-DCPS) served over 7,500 students in pre-K programs during the 2011-2012 school year. The District's General Education Prekindergarten Program is a full-day program. The VPK Program is a three-hour program, funded by state monies. In Title I schools, Title I administration pays for the remainder of the day; in non-Title 1 schools, the remainder of the day is paid by parent fees (\$12 per day). Low-income families may submit applications for their children to receive free breakfast and/or lunch through the Breakfast and Lunch Meal Program, available at all of the District's pre-K programs. When a teacher observes that a student needs to be referred to a supportive service agency, the parent is consulted and provided with information on available resources, usually by Student Services personnel. If the school is participating in The Children's Trust School Health Connect Program, a health clinic is available to the child.

The mandated teacher-student ratio in M-DCPS pre-K classrooms is 1:10. The maximum class size is 20 students with two adults in the classroom. The typical classroom configuration consists of one teacher and one paraprofessional for 20 students.

In October 2011, Florida's State Board of Education formally adopted the Florida Early Learning and Developmental Standards for Four-Year-Olds. Based on collaboration with a state panel of experts, national and state expert reviewers, and public input from citizens across the state, the standards create a common framework and language for pre-K program providers. The standards are aligned with the Kindergarten Next Generation Sunshine State Standards and Common Core State Standards, and describe skills that four-year-olds should know and be able to do by the end of their pre-K year. They are designed to guide pre-K administrators and teachers in designing and implementing appropriate early learning environments. The Florida Department of Education (FLDOE) cautions that the standards cannot take into account individual variations in development and should therefore not be considered absolutes. The FLDOE emphasizes that not every pre-K student will attain all of the standards by age 5 or kindergarten entry (Florida Department of Education, 2011).

All standards and benchmarks are organized into the following five domains:

1. Physical Development, including health and wellness; gross and fine motor development; and participation in self-care.
2. Approaches to Learning, such as eagerness and curiosity; persistence; creativity; and planning and reflection.
3. Social and Emotional Development, encompassing self-regulation (for example, demonstration of growing autonomy and independence and ability to follow simple rules and routines); relationships with adults and peers; and social problem-solving.
4. Language, Communication, and Emergent Literacy, including listening and understanding; speaking; vocabulary; and emergent reading and writing.

5. Cognitive Development and General Knowledge, including process and life skills that support learning across four components - mathematical thinking, scientific inquiry, social studies, and creative expression through the arts (Florida Department of Education, 2011).

During the 2011-2012 school year, M-DCPS teachers and paraprofessionals were trained on the new standards. Teachers will begin using the standards in August 2012.

Students' mastery of the pre-K standards will be assessed through various methods including teacher observation, children's authentic work, and the new Florida VPK Assessment. For additional information, the Houghton-Mifflin-Harcourt Early Growth Indicators Benchmark Assessment may be administered. All of these assessments are correlated with the new standards.

Public school VPK teachers are required to have a minimum of a bachelor's degree and certification in Pre-K/Primary Education. All pre-K teachers attend standards and assessment training sessions. Other professional development opportunities are offered to pre-K teachers based on a needs assessment. Teachers new to the pre-K program are provided with New Prekindergarten Teacher Orientation prior to the beginning of the school year. In addition, targeted professional development is provided in Early Literacy, Early Mathematics, Conscious Discipline, and a HighScope Series focusing on Planning and Assessment, Daily Routine, and Adult-Child Interactions.

For additional information on M-DCPS' pre-K programs, contact the Office of Early Childhood Programs at 305 995-7632 or visit <http://earlychildhood.dadeschools.net/>.

SUMMARY

This Information Capsule provided a summary of research-based recommendations for policymakers and educators to use when developing pre-kindergarten standards. There are two types of pre-K standards: student outcome standards and program standards. Student outcome standards define the knowledge and skills children are expected to demonstrate by the end of their preschool year. Student outcome standards should include all domains of learning; be flexible enough to accommodate individual students' learning styles and experiences; create a continuum of learning that does not rely on simplified versions of standards for older children; and be tightly aligned to both curriculum and assessment. Multiple stakeholders should be included in the development of research-based student outcome standards and ongoing support should be provided to staff and families in order to help children develop the skills outlined in the standards.

Program standards define how pre-K services will be provided. Examples of program standards that ensure the effectiveness of preschool programs include hiring highly trained teachers with expertise in early childhood education; providing teachers with high levels of initial training, followed by high-quality professional development experiences; reducing class sizes to 20 students or less; and maintaining teacher-student ratios of 1:10 or better. All programs should screen students for health problems and, if needed, refer families to appropriate supportive service agencies. In addition, children should be offered at least one nutritious meal each day.

Factors that contribute to gaps in children's preschool readiness were also summarized in this report. Research indicates that disadvantaged children are more likely to enter preschool with

lower levels of academic and language skills, greater social and emotional difficulties, and more health problems than their more advantaged peers. The factor that has been found to correlate most highly with preschool learning disparities is family income level. Children's home learning environment, parents' level of educational attainment, ethnic and cultural influences, as well as parental beliefs and behaviors are also related to school readiness and school performance outcomes. However, since most of these factors are strongly tied to socioeconomic status, researchers have concluded that income level is the most powerful predictor of children's educational success.

Studies have found that high-quality preschool programs have a positive impact on students' academic and socio-emotional development. The positive impact is most pronounced for disadvantaged children. Participation in high-quality preschool programs significantly narrows early learning disparities by diminishing the negative effects of family and environmental risk factors. Researchers have therefore concluded that the most promising strategy for narrowing early learning gaps is to increase access to high-quality preschool programs for all disadvantaged three- and four-year old children.

A brief description of Miami-Dade County Public Schools' (M-DCPS) pre-K program was also provided in this report. In accordance with the Florida Constitution, the Voluntary Prekindergarten (VPK) Education Program began operating across the state in 2005. The program provides free, voluntary pre-K to every four-year-old in the state. During the 2011-2012 school year, M-DCPS served over 7,500 students in pre-K programs. Beginning in August 2012, the District's pre-K teachers will begin using the state's new Florida Early Learning and Developmental Standards for Four-Year-Olds. These standards are aligned with the Kindergarten Next Generation Sunshine State Standards and Common Core State Standards, and describe skills that four-year-olds should know and be able to do by the end of their pre-K year. The standards are organized into five domains: physical development; approaches to learning; social and emotional development; language, communication, and emergent literacy; and cognitive development and general knowledge. The mandated teacher-student ratio in M-DCPS pre-K classrooms is 1:10 and the maximum class size is 20 students with two adults in the classroom. M-DCPS offers a Breakfast and Lunch Meal Program for eligible low-income students in all schools. Students are referred to supportive service agencies as needed.

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