

# **Learning Disabilities and Young Children: Identification and Intervention**

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This paper addresses early identification, services, supports, and intervention for young children, birth through 4 years, who demonstrate delays in development that may place them at risk for later identification as having a learning disability (LD). Such delays include atypical patterns of development in cognition, communication, emergent literacy, motor and sensory abilities, and/or social–emotional adjustment that may adversely affect later educational performance. Development in each of these domains may be related to individual variations in rates and patterns of maturation, environmental factors such as language exposure, and quality of learning opportunities. Although the focus of this paper is on developmental rather than academic expectations, it is recognized that adequate development across multiple domains is essential for subsequent school success. It also is important to recognize that when children are exposed to high quality learning opportunities prior to kindergarten, they are less likely to experience school failure and be misidentified as having LD in the early grades.

LD has been defined by the National Joint Committee on Learning Disabilities (NJCLD) as a heterogeneous group of disorders of presumed neurological origin manifested differently and to varying degrees during the life span of an individual. These disorders are developmental in nature, occur prior to kindergarten, and continue into adult life. Various manifestations of LD may be seen at different ages and as a result of varying learning demands (NJCLD, 1985/2001a, 1990/2001c). Early indicators that a child may have LD include delays in speech and language development, motor coordination, perception, reasoning, social interaction, prerequisites to academic achievement and other areas relevant to meeting educational goals. These indicators may occur concomitantly with problems in self-regulation, attention, or social interaction (Lowenthal, 1998; McCardle, Scarborough, & Catts, 2001).

In effective programs for infants, toddlers, and preschoolers, professionals (1) examine risk and protective factors, (2) conduct systematic observations of individual children, (3) assess developmental status, (4) create rich and varied learning opportunities, (5) plan and deliver services and supports, and (6) provide intervention based on assessment data. These programs are culturally and developmentally appropriate, linguistically sensitive, and based on scientific evidence. This paper describes how such programs can be established and implemented, emphasizes the importance of family and caregiver involvement and responsibilities, discusses issues in professional preparation and development, and articulates critical research needs.

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## Background

New legislation, advances in research, and changes in practice have occurred in the more than 20 years since the publication of the 1985 NJCLD paper “Learning Disabilities and the Preschool Child” (NJCLD, 1985/2001b). In that paper, the term *preschool* included the period from birth through kindergarten. This 2006 revision uses the term *young children* and focuses on the period from birth through age 4, or pre-kindergarten. In addition, this revision reflects new research in risk assessment, evaluation procedures, and high quality learning opportunities and interventions, as well as an increased understanding of the links between early spoken language development and LD.

In 1985 when the NJCLD paper on preschool children was originally published, families and professionals were celebrating nearly a decade of benefits from the landmark legislation, The Education for All Handicapped Children Act of 1975 (PL 94-142). School-age children (ages 6–21 years) with disabilities were entitled to a free and appropriate public education, in the least restrictive environment (LRE), based on individual needs and family preferences. This legislation set the stage for children with disabilities to obtain necessary services and to have opportunities to interact meaningfully with children without disabilities in general education settings. Subsequent legislation, The Education of the Handicapped Act of 1986 (PL 99-457), extended services from birth to 21 years, thereby providing the opportunity for young children to receive necessary individualized services and supports. Amendments and reauthorizations to this legislation, most recently The Individuals with Disabilities Education Improvement Act (IDEA, 2004), have underscored the need to provide services in inclusive settings and in natural environments, to involve families and professionals in collaborative decision making, and to support the transition of young children through early intervention, preschool, and school-age service delivery systems.

In fact, a fundamental principle of this legislation is family-centered care, whereby families are fully involved in assessment and intervention decisions for their children, in development of both the Individualized Family Service Plan (IFSP) for the birth to 3-year-old population and the Individualized Education Program (IEP) for older children. Professionals increasingly have recognized the need to provide culturally and linguistically appropriate services to children and their families. Federal legislation has paved the way for young children, particularly those from underserved communities, to participate in beneficial programs.

Coordination is critical so that all services for a child are integrated and implemented effectively. IDEA ‘04 includes provision for a designated service coordinator. A service coordinator or case manager functions as the single contact person for parents who conveys information from the multidisciplinary team of professionals. Families, caregivers, and administrators depend on service coordinators to inform them about the agencies that provide services in their state.

The No Child Left Behind Act of 2001 (NCLB, 2002) also has implications for young children with and without disabilities. Because of its focus on content and achievement standards and educational accountability, NCLB influences the areas that receive the most emphasis in preschool curricula and individually targeted interventions. An NCLB initiative, the Early

Reading First Program, is designed to provide high quality early education in the areas of language, cognition, and early reading skills to prevent reading failure, particularly for children from low-income families.

Finally, there has been an increasing emphasis in legislation, research, and practice on the provision of educational programs and services that are informed by available evidence. Evidence-based practices are grounded in valid and robust scientific research demonstrating that certain actions, under specific circumstances, are most likely to produce predictable and beneficial outcomes for children and families. Such practices are informed by an integration of theory, research, professional experience and judgment, and child/family values and preferences (see Sackett, Rosenberg, Gray, Haynes, & Richardson, 1996). However, research supporting practices varies in type and quality, with some practices more firmly grounded in research than others.

### **Early Identification**

The purpose of early identification is to determine which children have developmental problems that may be obstacles to learning or that place children at risk. Development in infants, toddlers, and preschoolers is characterized by broad variability in rates and patterns of maturation. For some children, differences and delays in abilities are temporary and are resolved during the normal course of development. For other children, delays may persist in different domains of functioning, necessitating the child's referral for targeted screening and/or comprehensive evaluation. At present, no clear distinction can be made in the early years between the children whose problems may persist from those who will make adequate progress with time. Therefore, young children who demonstrate difficulties in early development may or may not be at risk for LD; nevertheless, screening, evaluation, enhanced learning opportunities, and possibly intervention services should be provided. It is not in the child's best interest to "wait and see" or hope that the child will "grow out of" his or her problems. Conversely, it is important to guard against the premature identification of a disability, especially if high quality learning opportunities have not been provided.

It is often during the early years that families and caregivers first suspect a problem and may share their concerns with qualified professionals. However, some families initially may deny the existence of a problem because they are fearful of, or threatened by, its possibilities and consequences. Family cooperation is critical to early identification. Thus, professionals must recognize and be sensitive to differences in family responses, including cultural differences in viewing and addressing a disability, and provide appropriate support.

The identification process includes (1) screening, (2) examination for the presence of risk indicators and protective factors, (3) systematic observations, and, if indicated, (4) a comprehensive evaluation. An effective early identification program must take into account the numerous biological, environmental, and cultural factors that may influence the course of a child's development. Information from the identification process is the basis for making decisions about the need for further services and supports.

*Screening.* The purpose of screening is to determine if additional evaluation is required and in what developmental domains. Examples of large scale state-wide screening programs include Universal Newborn and Infant Hearing Screening and Child Find, a component of IDEA '04 that requires states to have a system to identify, locate, and evaluate all children with disabilities (birth-21 years), who need early intervention or special education services. Screening tools are not intended for diagnosis, placement, and educational planning. Careful consideration of reliability, validity, standardization, cultural and linguistic sensitivity, and relevance of screening instruments and procedures is required for appropriate selection, use, and interpretation. The NJCLD supports the recommendations by the Learning Disabilities Roundtable in 2002 that "all preschoolers should be screened to assess early language and reading skill development just as they are for vision and hearing" (p. 1).

*Risk indicators and protective factors.* A range of environmental, biological, genetic, and perinatal conditions may be associated with adverse developmental outcomes (see Shonkoff & Phillips, 2000) and may be risk indicators (i.e., warning signs) for LD. Also, advances in medical technology have kept an increasing number of fragile children alive, and these children often are at risk for developmental and later educational problems. Such risk indicators, especially when several are present, warrant careful monitoring of a child's development and signal the need to ensure high quality learning opportunities for this population. Children who do not respond adequately to these opportunities may be at increased risk for LD. Furthermore, young children with identified disabilities (e.g., cerebral palsy) also may be at risk for LD. However, risk indicators do not always predict which children will have future learning problems. Risk indicators must be considered within the context of typical developmental expectations. For example, an inability to follow one-step directions is not a risk indicator for a 6-month-old, but is for a 4-year-old, especially in combination with other risk indicators, such as poor fine motor coordination.

Protective factors that reduce risk and foster resilience can buffer children and families from circumstances that place them at risk. Risk indicators interact with protective factors in unique ways for each child. For example, some children with a history of birth complications may exhibit typical developmental patterns and require few if any special services, whereas other children without such histories may struggle to learn and may require formal assessment and intervention. Likewise, children who may have multiple risk indicators may not demonstrate learning problems if they receive strong culturally and developmentally appropriate early learning experiences. The two lists below, though not all-inclusive, identify possible risk indicators and protective factors for LD among infants, toddlers, and preschoolers:

### **Risk Indicators**

- Perinatal conditions
  - Low Apgar scores
  - Low birth weight and/or preterm birth
  - Hospitalization for longer than 24 hours in a neonatal intensive care unit
  - Difficulty with suckling, sucking, and swallowing
  - Chronic otitis media that may result in intermittent hearing loss

- Genetic or environmental conditions
  - Family history of LD
  - Adopted child status
  - Family history of spoken and/or written language problems
  - Exposure to environmental toxins or other harmful substances
  - Limited language exposure in home, childcare, and other settings
  - Poverty
  
- Developmental milestones
  - Delay in cognitive skills
    - Not demonstrating object permanence
    - Limited understanding of means–ends relationships (e.g., using a stool to reach a cookie jar)
    - Lack of symbolic play behavior
  - Delay in comprehension and/or expression of spoken language
    - Limited receptive vocabulary
    - Reduced expressive vocabulary (“late talkers”)
    - Difficulty understanding simple (e.g., one-step) directions
    - Monotone or other unusual prosodic features of speech
    - Reduced intelligibility
    - Infrequent or inappropriate spontaneous communication (vocal, verbal, or nonverbal)
    - Immature syntax
  - Delay in emergent literacy skills
    - Slow speed for naming objects and colors
    - Limited phonological awareness (e.g., rhyming, syllable blending)
    - Minimal interest in print
    - Limited print awareness (e.g., book handling, recognizing environmental print)
  - Delay in perceptual-motor skills
    - Problems in gross or fine motor coordination (e.g., hopping, dressing, cutting, stringing beads)
    - Difficulty coloring, copying, and drawing
  
- Attention and behavior
  - Distractibility/inattention
  - Impulsivity
  - Hyperactivity
  - Difficulty changing activities or handling disruptions to routines
  - Perseveration (i.e., constant repetition of an idea)

### Protective Factors

- Access to quality pre-, peri-, and postnatal care
- Maternal education
- High quality learning opportunities
  - Exposure to rich and varied vocabulary, syntax, and discourse patterns
  - Responsive learning environments sensitive to all cultural and linguistic backgrounds
  - Access to printed materials
  - Involvement in structured and unstructured individual/group play interactions and conversations
  - Engagement in gross and fine motor activities
- Multiple supports
  - Assistance adapted to the child's responsiveness to instruction or intervention
  - Access to adaptive and assistive technology (AT) and services
  - Transition planning between early intervention services (birth to age 3 years) and preschool programs (ages 3–5 years), and between preschool and elementary school
  - Service coordination

In summary, risk indicators do not necessarily predict later learning problems or indicate the existence of a disability, particularly when only a single indicator is present. Similarly, protective factors do not rule out the presence of a disability. However, the presence of risk indicators warrants substantial and serious efforts to facilitate early learning success, because many children at risk respond positively to high quality instruction and support. Therefore, children at risk, who may or may not have LD, need to receive carefully planned and responsive services and supports to enhance their opportunities for learning (see Coleman, Buysse, & Neitzel, 2006).

*Systematic observations.* Systematic observations of a child's behavior and abilities over time are an important addition to examining the presence of risk indicators and protective factors. Observations may be informal or may follow a standard observation protocol; in either case, they should be conducted multiple times and in varying contexts (e.g., home, diagnostic preschool, Head Start classroom, playgroup) to increase the reliability and validity of the hypotheses made regarding a child's behavior. In many cases, an extended period of observations will be necessary. Observations should provide a description of the frequency, consistency, and severity of the behaviors causing concerns in relation to contextual demands.

The child's family should be involved throughout the entire process. When professionals raise a question about the course of the child's development as a result of systematic observation, they should discuss the findings with the caregivers and family. When indicated, a referral should be made to appropriate professionals for further evaluation and, if warranted, provision of supports and services should be recommended.

*Comprehensive evaluation.* When a screening, a review of risk indicators and protective factors, and systematic observations suggest that a child is at risk for LD, professionals should conduct periodic evaluations to ascertain whether development follows expected patterns. The major goal of a comprehensive evaluation is to determine the individual child's specific pattern of abilities and needs and to identify strategies and resources to address learning and behavioral problems as soon as possible. These evaluations should occur across different settings and should consider multiple perspectives offered by caregivers and professionals. An interdisciplinary approach is especially valuable in obtaining and interpreting evaluation information derived from a variety of sources (see Wolraich, Gurwitch, Bruder, & Knight, 2005). Evaluations should focus on developmental norms across domains (e.g., cognition, communication, emergent literacy, motor and sensory abilities, and/or social–emotional adjustment); however, it is important to recognize that there is a wide range of individual differences, both within and between children, some of which may fall within the “normal” range of expected behaviors.

A comprehensive evaluation involves the use of multiple instruments and procedures, including norm- and criterion-referenced tests, teacher/parent rating scales, and developmental checklists. The use of a single instrument or procedure does not constitute a comprehensive evaluation. Practitioners should use culturally and linguistically sensitive instruments to ensure appropriate assessment of children with potential LD. Evaluation of the child's status and needs depends on an integrated assessment of the child's functioning in the following domains:

- cognition, including perceptual organization, memory, concept formation, attention, and problem solving;
- communication, including speech/language form, content, and use for receptive and expressive purposes;
- emergent literacy, including phonological awareness, awareness of print; and numeracy, including number recognition, and number concepts;
- motor functions, including gross, fine, and oral motor abilities;
- sensory functions, including auditory, haptic, kinesthetic, and visual systems; and
- social–emotional adjustment, including behavior, temperament, affect, self-regulation, play, and social interaction.

Time-limited placement in a diagnostic preschool setting can be a useful part of the comprehensive evaluation for addressing diagnostic questions and determining the effectiveness of various evidence-based interventions for the child.

### **Early Services and Supports**

If a learning problem or delay in development has been suggested based on screening, review of risk indicators and protective factors, systematic observation, and, if indicated, comprehensive evaluation, then the priority should be to ensure that services and supports based on individual needs and strengths are available. Such services and supports may include (a) providing special education interventions that meets the child's developmental, behavioral, and pre-academic learning needs; (b) offering strong preschool programs; and (c) enhancing the home language and literacy environment. Services and supports for young children should be evidence-based, developmentally appropriate, family-centered, and culturally and linguistically sensitive. Professionals must ensure that their findings and recommendations for services and

supports are sensitive to all cultural and linguistic backgrounds, such as those for English language learners. Likewise, professionals must ensure that caregivers and family members have access to a range of supports such as the following:

- helping families and caregivers to recognize, understand, and accept the child's problems;
- selecting programs that meet the child's individual needs;
- locating parent support networks and programs;
- finding a service provider or agency whose treatment philosophy is congruent with the family's preferences;
- identifying appropriate interventions and resources available within public or private preschool programs; and
- facilitating the child's development in the home and childcare environment.

A variety of professionals, in collaboration with families and caregivers, is involved in the selection and delivery of services and supports. Collectively, the professionals should possess knowledge of typical and atypical patterns of development in the domains of cognition, communication, emergent literacy, pre-academic interventions, and motor, sensory, and social-emotional functioning, as well as the capacity to collaborate effectively. The following is a list of the roles of some of the professionals in addition to the child's pediatrician who typically are involved with infants, toddlers, and preschoolers:

- Audiologist—specializes in the nonmedical management of hearing and related problems (e.g., balance)
- Early childhood general and special education teachers—plan and provide educationally relevant interventions and other services based on the IEP or IFSP
- Occupational therapist—helps children improve their ability to perform fine motor skills and daily activities and to achieve independence
- Physical therapist—helps children develop gross motor skills and coordination; they also provide services aimed at preventing or slowing the progression of conditions resulting from injury, disease, and other causes
- School psychologist—collaborates with educators, parents, and other professionals to create safe, healthy, and supportive learning environments that strengthen connections between home and school
- Speech-language pathologist—assesses, diagnoses, and provides intervention services and supports for individuals with speech, language, literacy, cognitive-communication, social communication, and swallowing problems

Other professionals may be involved, such as childcare providers, educational diagnosticians, educational therapists, reading specialists, social workers, English as a Second Language (ESL) teachers, child/developmental psychologists, pediatric neurologists, and child psychiatrists. The specific needs of the child should determine the mix of professionals who will assist the family and caregivers at home, in the preschool, and in the special education setting.



The provision of services and supports may enhance the learning opportunities for young children who may be at risk for LD but who have not been identified with a specific disability. The services and supports required by children and their families and caregivers vary along a continuum of intensity and may be provided in different settings. Providing a continuum of services and supports is consistent with a response to intervention (RTI) model, which is a framework that may be used for identifying school-age students with LD (NJCLD, 2005). The application of RTI principles has been proposed for preschool-age children, with its characteristic use of different levels of instructional intensity, collaborative problem-solving, early response, and data to inform instruction and monitor progress (Coleman et al., 2006).

*Less intensive services and supports.* The initial level of early services and supports for young children at risk for LD would be less intensive and would revolve around daily experiences generally available in any strong preschool program. Such services and supports may involve assisting caregivers and families in increasing interactions with their children. Experiences like shared book reading, conversations about current and past events, and family trips to the zoo, market, library, and playground provide opportunities for such interactions and also stimulate conceptual and linguistic development. It is important to provide activities that develop perceptual, coordination, and fine and gross motor skills, such as use of scissors, crayons, finger paints, beads, balls, and puzzles. Emergent literacy can be encouraged by having books, magazines, and other literacy artifacts available in home, childcare, preschool, and other settings, and by engaging in activities such as word play, drawing, and storytelling. Literacy activities at home, in the preschool, and in other settings can develop print concepts, story sense, phonological awareness, and matching speech to print, and offer opportunities for practicing beginning reading and writing skills (Lonigan, 2006).

*More intensive services and supports.* More intensive services and supports may add ongoing, regular consultation with one or more service providers and participation in more structured programs. For preschool-age children, for example, such support might mean an increased emphasis on activities focusing on the acquisition of emergent literacy skills and enrollment in a high quality preschool program that includes more individualized activities. In fact, Head Start programs are now required to document children's progress in early development, particularly literacy (Head Start, 1998). This has resulted from an increased recognition of the importance of early development to later school success and an increased awareness of the discrepancies in development for young children due to differences in socioeconomic, sociolinguistic, and sociocultural factors.

*Most intensive services and supports.* If young children do not respond to the earlier levels, more specialized and individualized instruction and intervention strategies may be needed. Such services would be provided to children with identified disabilities who are eligible to receive special education. Some of these children with disabilities, such as those with developmental delay or speech and language impairment, may be identified later as having LD. Because no single instructional approach or intervention strategy can be expected to serve the different needs presented by young children with disabilities, it is essential that selection of an instructional strategies and program be based on a clear understanding of a child's specific strengths and needs. The selection of the service delivery system, including the setting (e.g., inclusive or non-inclusive), models (e.g., pull-out, classroom-based, collaborative-consultation),

and supports can then proceed. The LRE provision in IDEA '04 requires that young children with disabilities receive services in settings that best match their education needs. State and local agencies need to ensure the availability of a continuum of service delivery options for students with disabilities, provide funding, and promote interagency cooperation among public and private sectors.

### **Instruction/Intervention Strategies**

An effective instructional program is based on a child's individual strengths and needs and includes well-defined goals, objectives, content, materials, and support (e.g., occupational and physical therapy, AT). Careful development of the individual instructional program is especially important due to the increased recognition that the pre-kindergarten years are a critical period during which intervention efforts are most effective (see Guralnick, 1997). A summary of research (Paul-Brown & Caperton, 2001) suggests that decisions about instructional programming should be guided by five quality indicators of successful programs for young children:

1. Have a philosophy of individualized programming based on specific needs with a preference for inclusive practices.
2. Rely on relevant research to design service delivery models that meet the individual, changing needs of a child over time and that provide opportunities for interactions in natural environments.
3. Form collaborative partnerships that select and achieve goals for each child.
4. Provide ongoing professional development.
5. Conduct program evaluation and research.

Decisions regarding which instructional approach or intervention strategy to use should be determined with interdisciplinary, family, and caregiver input on the basis of individual learner characteristics and needs and incorporated within the IFSP or IEP. The family and caregivers have an important responsibility for the application of learned skills in the home environment; direct family and caregiver involvement is a major determinant of intervention effectiveness. The interventions selected should be based on current research, principles of evidence-based practice (i.e., an integration of theory, research, professional judgment, and family preferences), and progress-monitoring data. In summary, appropriate evidence-based intervention practices should be a collaborative effort that

- focuses on the child's needs while capitalizing on the child's existing strengths;
- is explicit, systematic, and comprehensive;
- links intervention activities to family activities;
- integrates intervention with the preschool curriculum and makes curricular adaptations as necessary; and
- results in functional and meaningful progress that can be sustained over time and across settings.

Once an instructional program has been planned, determining the setting in which special education services are provided is an important decision. For children from birth to 3 years, IDEA '04 Part C mandates that services be delivered in a “natural environment.” The home often is considered to be the ideal setting for providing services to these young children; however, childcare centers also may be considered natural environments.

Also influencing decisions about the service setting is the clear preference in IDEA '04 for inclusive settings, where children with disabilities are served with typically developing children. The two main types of inclusive settings are (a) full inclusion, where the child with disabilities is placed in a classroom in which the majority of the children exhibit typical developmental patterns, and, less frequently, (b) reverse inclusion, where a few children who exhibit typical developmental patterns are placed in a classroom of children with disabilities. An advantage of inclusive settings is that typically developing young children can serve as appropriate models for their peers with disabilities (see Guralnick, 2001). One barrier to placement in either type of inclusive setting is the fact that public preschool programs are not available in all states for children without disabilities. Head Start programs provide access to inclusive settings for young children from low-income families. The national pre-kindergarten movement in the United States may be one response to the challenge of creating more inclusive preschool programs because more young children without disabilities will be attending public preschools (see Barnett & Yarosz, 2004).

Different types of service delivery models may be used across settings and also should be selected based on individual child needs. While home-based, classroom-based, and collaborative consultation models are most compatible with the characteristics of inclusive settings (e.g., encouraging peer interactions, providing services in the natural environment, integrating services within the ongoing home or classroom routine), pull-out services may be appropriate at times for some children. When the child makes a transition from one service setting or service delivery model to another, coordination and orderly, timely transfer of information among professionals is essential to ensure continuity of services.

Another consideration to the provision of effective instructional programs is the use of supportive services such as AT when needed. Technological advances have improved intervention programming for young children at risk for or with identified disabilities. The use of AT and augmentative and alternative communication (AAC) systems, a subset of AT, can foster access, interaction, and integration in daily communication and classroom activities for young children (Ronski, Sevcik, & Forrest, 2001). Since the late 1980s, AAC systems have been used to enhance communication and literacy skills for young children who do not speak or whose speech is unintelligible. Instructional approaches for teaching communication skills, whether through AAC or more conventional speech modes, have moved from one-on-one, discrete and repetitive skills training to teaching more contextually based (e.g., home, community, classroom) communication functions (e.g., requesting, commenting, rejecting) in everyday situations and with a child's regular communication partners.

A number of instructional software programs has been designed specifically for young children. Software may enhance children's concept development, develop emergent literacy skills, and increase attention. However, there is little empirical evidence of the efficacy of many software programs for accomplishing these aims, and computer-assisted instruction should not replace interactions with families, peers, and professionals.

### **Personnel Preparation and Professional Development**

Personnel preparation programs and professional development opportunities should help early childhood professionals meet the challenges of education in the 21<sup>st</sup> century by ensuring that they are knowledgeable about current research in the field, understand education legislation, and thoughtfully and skillfully integrate technological advances into evidence-based practice. The NJCLD defines professional development as “an ongoing process of continuous improvement that includes meaningful needs assessment, intensive informational sessions, and long term follow-up and support. It is not an event” (NJCLD, 1999/2001e, p. 77).

It is commonly accepted that professionals providing services to young children should be able to work with families, provide culturally and linguistically sensitive services, promote interagency coordination, engage in professional collaboration, and advocate for matching the needs of individual children to a continuum of available services and supports. In addition, professionals must be able to meet federal and state legislative requirements, including developing IFSPs and IEPs, accessing general education curricula, and meeting accountability standards. Moreover, professionals must possess knowledge and skills related to both typical and atypical child developmental patterns in domains such as cognition, communication, emergent literacy, motor and sensory function, social-emotional adjustment, and academic development (NJCLD, 1997/2001d, 1999/2001e). Specific competencies related to effective professional practice with young children have been developed by several organizations (e.g., American Speech-Language-Hearing Association, in press; Council for Exceptional Children, 2003; National Association for the Education of Young Children, 2002). Nevertheless, current and important instructional issues in personnel preparation and professional development require further examination and research: (a) What constitutes evidence-based instructional methods and materials? (b) How can evidence-based practices be implemented with fidelity, appropriate intensity, and sufficient duration? (c) How can data be collected, interpreted, and shared in ways that inform instruction?

Administrative and supervisory personnel need to support a school philosophy that promotes the principles of early identification, planning, and intervention articulated in this paper. For instance, administrators should consider realistic scheduling, reasonable workloads, efficient allocation of resources, sufficient availability of materials, adequate access to technology, and ways to ensure the support that each educator needs. Likewise, administrators can support professionals' awareness of and participation in advocacy activities for children with disabilities as well as identify valuable information resources for professional development.

Personnel preparation and professional development programs also may focus on enhancing collaborative skills among the professionals who serve young children. Sharing and jointly determining goals and expectations, having effective systems for ongoing communication, negotiating roles, and establishing professional learning communities (e.g., study groups, shared inquiry) are requisite skills for effective collaborative partnerships (Paul, Blosser, & Jakubowitz, 2006). Therefore, to maximize the expertise of early childhood professionals, administrators should provide protected time for planning and collaboration as well as for the development and refinement of collaborative skills.

## **Research Needs**

The 1985 NJCLD paper on LD and the preschool child (NJCLD, 1985/2001b) raised questions about the need for research related to (a) the prognostic value of risk indicators (e.g., phonemic awareness, vocabulary knowledge, socioeconomic status); (b) links between social–emotional adjustment, behavior, and later academic learning; and (c) factors contributing to the success of various intervention programs and strategies. Research over the past 20 years summarized in this paper has helped us address some of these questions.

The current press for emergent literacy instruction before kindergarten is the result of the work of bodies such as the National Reading Committee (Snow, Burns, & Griffin, 1998), the National Research Council (2001), and the National Early Literacy Panel (2005), as well as the efforts of researchers associated with the National Institute of Child Health and Human Development (NICHD) (Lyon, 1995; National Reading Panel, 2000). These research programs have shown that deficits in phonological processing can be a major impediment in learning to read. The research suggests that oral language, phonological sensitivity, concepts about print, alphabetic knowledge, invented spelling, rapid naming, and ability to write one’s own name prior to kindergarten are early indicators of literacy success (National Early Literacy Panel, 2005). Moreover, research has demonstrated that the most effective interventions for children at risk for later reading problems use structured language curricula, particularly in preschool and kindergarten, that include explicit teaching of phonemic awareness, sound–symbol relationships (phonics), vocabulary, and comprehension (Dickinson, McCabe, & Essex, 2006; Lyon, 1995).

Although these research efforts have been extensive, additional questions remain about emergent literacy instruction and predictors of later school success. A robust research agenda should address the following:

- the effectiveness of emergent literacy instruction for preschoolers,
- how emergent literacy instruction affects later academic performance,
- whether literacy instruction is appropriate as a primary focus during this period of development,
- what types of emergent literacy instruction are well suited for children with particular developmental profiles,
- how effective predictors are for older children,
- whether there are additional important indicators of school success (e.g., perceptual, sensory, motor, social–emotional, behavioral),
- how risk indicators operate in combination,

- what is the best language for literacy instruction for children who have been exposed to and use more than one language, and
- what are the best means of measuring these risk indicators.

Other pressing educational practice issues, concomitant with risk indicators, also relate to early identification and intervention for young children. The following issues should be addressed as part of a comprehensive research agenda:

- Bearing in mind that LD is not a unitary construct and that LD spans a range of severity from severe to mild, how early is it possible to determine the existence of LD?
- Given the tension between advocates of a traditional developmental focus and of the recent academic emphasis in early childhood programs, what are the merits of each separately and what, if any, empirical data are there to support a commingling of approaches?
- How will emerging research on early predictors of later success in mathematics inform identification, planning, and intervention for children with disabilities, including LD?
- In view of the rapid growth in and availability of technology, which technologies can be used most effectively for delivering services and supports to young children with disabilities, including those at risk for LD?
- In consideration of the recommendations of a recent synthesis of studies on RTI that noted a lack of empirical evidence for children prior to kindergarten entry, conduct research to determine whether an early intervening system for children prior to kindergarten is effective “under carefully controlled conditions..., in naturalistic settings, on a much larger scale and in a variety of contexts” (Coleman, Buissee, & Neitzel, 2006, p. 35).

Systematic research efforts should continue to address issues related to identification, learning opportunities, and provision of services and supports for young children with possible LD. The ultimate goal of these efforts is improved learning outcomes and school success.

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