

Promoting Success: Early Indicators of Learning Disabilities in Preschool Children

by Margaret C. Gillis

Approximately 5% of all children of school age in public schools in the United States are identified as having a learning disability and are receiving some form of educational support services (*LD at a glance*, n.d.). With so many school-aged children identified as having learning disabilities, it is important to consider how learning disabilities develop and have an impact on young children. If we understand how learning difficulties manifest in young children, parents, teachers, and other professionals can recognize early signs of difficulty and offer additional support as needed. This article summarizes the research on skills and behaviors that seem to be early indicators or precursors of learning disabilities in pre-kindergarten children (ages 3–5). Understanding these skills and behaviors will help us identify children who may be experiencing difficulty so we can provide additional support, placing the child on an early pathway for success.

Children may exhibit observable behavior patterns in early childhood that foreshadow learning disabilities (Lowenthal, 1998; Steele, 2004). Early intervention and educational support of these children before they enter school may smooth the transition allowing them to be more successful in kindergarten and beyond. Although children may not be formally identified as having a learning disability until they reach school age, quick and cost-effective screening measures could be used in preschool to recognize children who may be at risk for a learning disability (Satz & Fletcher, 1988). In a model such as response to intervention (RTI), screening occurs multiple times each year to determine whether children are making adequate progress on key skills, early literacy skills in particular (Coleman, Buisse, & Neitzel, 2006). When parents, teachers, and other professionals are able to identify behaviors in pre-kindergarten-age children that indicate they might be struggling with learning, early intervention can be provided to respond to those needs. The skills and behaviors that contribute to academic success or to learning disabilities in young children have been identified through conceptual literature as well as research.

Conceptual descriptions of precursors of learning disabilities include a wide variety of behaviors relating to deficits in language and literacy skills (Joshi, 2003), memory, social-emotional, self-regulation, and motor skills (Lowenthal, 1998). Catts and Hogan (2003) argue that developmental language impairment in early childhood is the most reliable sign of a potential reading problem, while others suggest that skills such as name-writing could be indicative of early literacy skills (Haney, 2002). Aspects of a child's temperament, such as activity level and attention span, also may have an impact on learning (Teglasi, Cohn, & Meshbesher, 2004).

Although relatively few research studies have specifically investigated early indicators of learning disabilities, many have contributed to the pool of knowledge by investigating predictors of achievement or academic skills and discussing the low

end of the spectrum of skills and achievement as it relates to learning difficulty (e.g., Badian, 1982; Ellis & Large, 1987; Gilbertson & Bramlett, 1998). The skills and behaviors identified by researchers as early indicators of learning disabilities can be grouped into six general skill categories: language, literacy, early math, social-emotional, self-management, and perceptual motor. The skills identified give us an idea of which areas to focus on when screening and assessing young children in pre-kindergarten and the early school years.

Understanding these skills and behaviors will help us identify children who may be experiencing difficulty so we can provide additional support, placing the child on an early pathway for success.

Language Skills

Early language skills appear to be among the most important contributors for future reading and academic success. Skills such as sound blending (e.g., c/a/t makes cat), rhyming, discrimination of beginning sounds, morphology (i.e., combining words, word stems, and affixes to express meaning), and speech comprehension have contributed to children's reading skills and ability up to several years after initial assessment (Ellis & Large, 1987; Felton, 1992; Gilbertson & Bramlett, 1998; Olofsson & Niedersoe, 1999). Children's vocabulary also has been identified as a predictor of reading skills (Ellis & Large, 1987; Olofsson & Niedersoe, 1999). Receptive language measures have been found to predict overall academic achievement (Agostin & Bain, 1997). Other studies identified Rapid Automatized Naming (RAN) of letters and objects as a predictor of reading skills (Blumsack, Lewandowski, & Waterman, 1997; O'Malley, Francis, Foorman, Fletcher, & Swank, 2002). Additionally, children classified as poor readers have been shown to have deficits in sentence memory, spoken language, and naming rate of letters, colors, and shapes (Badian, 1994).

Children's skills with semantics (i.e., the meaning of words and language) and word production have been found to predict difficulty with word learning (Gray, 2004). Also, children with learning disabilities have been shown to exhibit deficits in phonological processing (i.e., detecting and discriminating speech sounds) (O'Malley et al., 2002). Finally, children with language delays or language impairments in early childhood and the early school years were significantly more likely than children without delays or impairments to have a learning disability or reading difficulty in two studies

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(Catts, Fey, Tomblin, & Zhang, 2002; Silva, McGee, & Williams, 1983). Together, the results of these studies suggest that assessments in early childhood should contain measures of both receptive language skills and expressive language skills to screen children who might have learning difficulties.

Early Literacy Skills

Early literacy skills also contribute to learning difficulty or disability. Phonological awareness and phonological processing skills have been found to play a role in reading ability or at-risk status (Badian, 1994; Most, Al-Yagon, Tur-Kaspa, & Margalit, 2000). Other skills identified as predictors of reading ability or skills include letter sounds knowledge, discrimination of beginning sounds, phoneme awareness (e.g., understanding "cat" is made up of /c/, /a/, /t/), phoneme manipulation, printing letters, spelling, and sentence construction (Blumsack, Lewandowski, & Waterman, 1997; Ellis & Large, 1987; Felton, 1992; Gilbertson & Bramlett, 1998; Mann & Foy, 2003; Olofsson & Niedersoe, 1999). Additionally, children at risk for disabilities have been shown to have lower phonological awareness skills than their peers who were not at risk (Most et al., 2000).

Early Math Skills

A number of early math skills have been identified as contributing to future mathematical ability or disability, as well. Children with math disabilities have exhibited deficits in numeric processing (Mazzocco & Thompson, 2005). These deficits can manifest themselves in observable ways, such as immature counting strategies or inability to read numerals. Additionally, the counting subtest in one study was identified as a predictor of reading ability (Badian, 1982).

Social Emotional Skills

Consistent with some of the conceptual descriptions of learning disabilities, research finds evidence that children at risk for and with disabilities exhibit some social-emotional difficulties. Most and colleagues (2000) found that children at risk for disabilities were less socially accepted by their peers and had a lower sense of coherence than their peers without disabilities. Additionally, work-related social skills, including participation in groups, appear to contribute to academic success (McClelland & Morrison, 2003; McClelland, Morrison, & Holmes, 2000). This suggests that children with disabilities or those who are at risk for disabilities may have difficulty with skills such as cooperation.

Self-Management Skills

In addition to cooperation, the construct of work-related social skills includes many behaviors relating to self-management skills. Skills such as staying on task, organizing work materials, and listening and following directions also contribute to academic performance (McClelland & Morrison, 2003; McClelland, Morrison, & Holmes, 2000). Not surprisingly, self-control has also been found as a predictor of

school success (Agostin & Bain, 1997). Additionally, the ability to maintain attention to a task has been identified as a discriminator between children with and without learning disabilities (Blumsack, Lewandowski, & Waterman, 1997). Again, the findings of these studies are consistent with conceptual descriptions of learning disabilities that take into account self-management skills that help children succeed in school (Lowenthal, 1998).

Perceptual Motor Skills

The final area in which skills that contribute to academic outcomes have been identified is perceptual motor. Skills such as working memory, visual analogical reasoning (i.e., visually comparing new concepts to already understood concepts to gain an understanding of the new concept), and visual memory appear to contribute to academic skills later (Agostin & Bain, 1997; Holopainen, Ahonen, & Lyytinen, 2001). Additionally, children classified as poor readers have been found to have deficits in visual memory (Badian, 1994). The ability to follow multistep directions also has been identified as a discriminator between children with and without learning disabilities (Blumsack, Lewandowski, & Waterman, 1997). Finally, children identified as learning disabled have been shown to have deficits in perceptual discrimination (e.g., identifying speech sounds) and visual motor integration (e.g., hand-eye coordination) (O'Malley et al., 2002).

There is much evidence showing the contribution of language and early literacy skills to reading and academic outcomes and a growing body of evidence identifying the importance of social and adaptive contributions to aspects of life in a classroom for children's success. The research summarized suggests that children may exhibit difficulty in one or more areas, and that early assessment should look at the whole child.

Conclusions and Recommendations

The research described above provides evidence that it is possible to identify children who are at risk for learning disabilities or difficulties as young as pre-kindergarten. Evidence also supports the positive effects of early intervening to promote children's school success. Ongoing screening and assessment is needed for teachers, parents, and specialists to recognize children who may show signs of struggle in the areas identified as early indicators of learning disabilities. Once areas of difficulty are recognized, targeted intervention responses may help prevent emerging problems from developing into learning disabilities. It is possible that early recognition of and response to children's needs may have an immediate impact on the number of children referred for special education.

It is also evident that to effectively screen children for learning difficulties or emerging disabilities, we must know more about how learning disabilities develop and manifest in young children. The literature included in this article provides a foundation for understanding the early indicators of learning disabilities. However, longitudinal studies are necessary to understand the processes underlying the development of

learning disabilities at various ages leading up to school entry. We must also learn more about the most effective strategies for intervening with young children to prevent learning difficulties from turning into learning disabilities.

Recognition of the early indicators of learning disabilities is important; however it is a "means" and not an "end." The recognition of early indicators of learning disabilities becomes powerful only if parents and professionals use this knowledge appropriately by intervening early. When recognition of a child's needs is combined with appropriate responses early, we cannot only prevent failure—we can promote success.

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