

**Written Comments to the  
National Mathematics Advisory Panel  
Submitted by the National Center for Learning Disabilities  
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Contact

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**Comments**

The National Center for Learning Disabilities (NCLD) is pleased to offer the following comments in support of the important work of the National Mathematics Advisory Panel. NCLD is a not-for-profit organization founded in 1977 that seeks to increase opportunities for children, adolescents and adults with learning disabilities (LD) to succeed in school, work and life. We work with a national network of more than 30,000 parents, teachers and individuals with LD. Our 30-year commitment to children and adults with LD is based on the guiding principle that federal policies should reflect what research tells us. From research we know that:

- Learning disabilities are neurologically based
- They do not go away
- They affect some 5% of the population
- 2.9 million students are diagnosed with LD and receive special education services in our schools, representing 50% of students with disabilities nationwide
- They require early and accurate identification and effective intervention if students with LD are to succeed in school and life.

We also know that:

- ▶ Students with learning disabilities are retained much more often than the general population – more than one-third are retained at grade level at least once, usually in elementary school. (*NLTS2 2003*)
- ▶ Over 35 percent of students with learning disabilities drop out of school (compared to 11 percent of the general student population). (*24th Annual Report to Congress on the Implementation of the Individuals with Disabilities Education Act 2002*, U.S. Department of Education)
- ▶ Two-thirds of high school graduates with learning disabilities were rated entirely unqualified to enter a four-year college, compared to 37% of non-disabled graduates. (*Students With Disabilities in Postsecondary Education: A Profile of Preparation, Participation, and Outcomes, NCES 1999*)

NCLD has a special interest in the findings and recommendations of the Panel as it addresses assessment and instructional practice for children who struggle with learning. Just as the National Reading Panel has had a significant, positive impact upon general and special education practices in support of children with specific learning disabilities in reading, it is our hope and expectation that the work of the National Math Panel will result in a rigorous research agenda that will enhance our knowledge of the essential foundational mathematical skills necessary for skill mastery, not just in preparation for algebra learning but for foundational skill development across the K-12 curriculum. We further hope that the work of the Panel will result in and contribute to the development of effective models for screening and assessment of math difficulties for all children, including those who evidence frustration with learning during the preschool and early school years.

## **Recommendations to the Panel**

1. **The Panel must examine how core curriculum programs incorporate explicit, systematic instructional activities essential to the success of students with learning disabilities.** Research strongly supports the view that, in great part, children's arithmetical difficulties are highly susceptible to intervention. This is particularly important since a growing literature shows that constructivist approaches to math instruction are less effective for low-performing students than for average- or high-performing students who are served in general education programs.
2. **The Panel needs to examine the existing instructional research base for students with mathematics disabilities and assess the need for additional research designed to promote better outcomes for students with learning disabilities.** Although prevention is important, it is certain that ongoing intervention will be essential for students with learning disabilities. Forty-four percent of secondary students identified with learning disabilities are working three to 4.9 grade levels behind their same age peers (*NLTS2, 2003*). Mathematics curricula incorporate diverse content strands and with varying degrees of emphasis across primary, intermediate, and high-school levels. Coupled with the developmental trajectories of students who evidence atypical and uneven learning rates and profiles, early prevention efforts may potentially be less effective than might be the case in reading.
3. **Given the breadth of content covered in mathematics curricula, the Panel should make particular efforts to delineate critical mathematical content at each grade level.** Current research suggests that the learning of foundational skills in core areas of math lays the foundation for more advanced mathematical knowledge. Students with mathematics learning disabilities need more intensive and focused instruction centered on critical mathematics content. Clear delineation of principles and proven models for building math competencies across the pre-K through grade 12 years should be a priority.
4. **The Panel should address the challenge of identifying instructional variables that are known (or that have potential) to increase student achievement across academic subjects.** The paucity of research on effective mathematics instruction severely compromises educators' efforts to employ effective instructional procedures (e.g., teacher modeling of critical mathematics concepts) across general education curriculum areas.

5. **The Panel must consider the critical role of teacher knowledge of mathematics and recommend both short- and long-term solutions to the shortage of highly qualified personnel in this area.** The Panel should consider the viability of pre-service, in-service, and targeted training programs for credentialing mathematics specialists (similar to reading specialists). The Panel should also address the issue of providing educators access to a knowledge base of best practices in mathematics instruction and assessment.
6. **The Panel should determine whether a focus on the prevention of mathematics learning disabilities is warranted.** While evidence is emerging on the nature of developmental trajectories in mathematics learning, there is an unproven mantra that ‘earlier is better’ with regard to intervention. In order to answer questions about prevention and the effectiveness of instruction, the Panel should consider the following issues:
  - Development of valid and reliable screening tools to identify students who may be at-risk of later classification as learning disabled in mathematics.
  - Appropriate interventions that can be implemented in general education settings with increased collaboration between general and special education.
  - Monitoring of student growth in acquiring critical skills that lay the foundation for later success in mathematics
7. **The Panel should create guidelines for the formative assessment of instructional methodologies and interventions, particularly those used with students who have learning disabilities in mathematics.** Guidance should be provided to determine the ‘goodness of fit’ and effectiveness of given approaches, with consideration given to how well measures offer opportunities for alignment of critical content and grade level objectives.

On behalf of thousands of committed parents, teachers and others working with us, NCLD thanks you for the opportunity to present recommendations. We stand ready to assist you as you complete this important work.