



NATIONAL CENTER FOR IMPROVING STUDENT LEARNING
AND ACHIEVEMENT IN MATHEMATICS AND SCIENCE

NEWS RELEASE

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*Cognitively Guided Instruction (CGI) Research
Featured at DECADE OF BEHAVIOR Launch*

NCISLA Director Thomas Carpenter and teacher-colleague Mazie Jenkins presented the research and impacts of Cognitively Guided Instruction (CGI) at the formal launch of the Decade of Behavior in Washington, DC, the evening of September 25, 2000. CGI has been shown to yield positive results in young students' mathematics learning and provides teachers an innovative and effective professional development program.

The Decade of Behavior exhibit and reception in the Cannon House Office Building attracted more than 250 guests, including members of Congress, federal agency officials and scientists. This group interacted over social and behavioral sciences research selected by the Decade of Behavior's National Advisory Committee as representing research that is cutting-edge and having promising implications. The event was built around 13 research exhibits that together covered the 5 major themes of the Decade: a better educated nation, a healthier nation, a safer nation, a more prosperous nation, and a more democratic nation.

One of 2 educational research exhibits, *Cognitively Guided Instruction: A Research-Based Approach to Building On and Building Up Students' Mathematical Thinking* featured the work of University of Wisconsin-Madison education researchers Thomas P. Carpenter, Elizabeth Fennema, and Megan Loef-Franke (now at UCLA). Working with local teachers, the researchers found that young children enter school with a base of informal mathematical knowledge and are capable of learning more substantive mathematics than traditionally expected. Out of this 15-plus year research program has evolved the CGI teacher professional development program, which helps teachers to understand children's mathematical thinking and to build on this knowledge in classroom instruction. Data show that the CGI program results in significant changes in how teachers teach and yields significant gains in problem-solving. Teachers have participated in the CGI teacher

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professional development program in Phoenix, AZ, Los Angeles, CA and Madison, WI, and through the Region VI Comprehensive Center. The program is also explained in the 1999 book *Children's Mathematics: Cognitively Guided Instruction*. CGI research is supported in part by the National Science Foundation and the U.S. Department of Education

At the Decade of Behavior launch, Madison teacher and math resource specialist Jenkins, and Carpenter, UW-Madison Professor of Education and Director of the National Center for Improving Student Learning and Achievement in Mathematics and Science, talked with leaders of federal agencies and Congressional staff about the CGI professional development program and its encouraging impacts.



Madison, WI teacher, Mazie Jenkins (second from left), describes CGI to Decade of Behavior guests,

Also during the launch, Congressman David Price (D-NC), formerly a professor of political science at Duke University, and Congressman Brian Baird (D-WA), a clinical psychologist by training, spoke of the importance of behavioral and social scientists studying daunting challenges facing our society. In addition, a letter from President Bill Clinton was presented, in which the President praised behavioral and social scientists for their efforts to create a brighter future for all Americans.

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FOR MORE INFORMATION

ABOUT COGNITIVELY GUIDED INSTRUCTION (CGI)

Following is an abbreviated list of publications that highlight CGI research:

Carpenter, T.P., Ansell, E., Franke, M. L., Fennema, E., & Weisbeck, L. 1993. "Models of Problem Solving: A Study of Kindergarten Children's Problem-Solving Processes." *Journal for Research in Mathematics Education* 24 (5): 427-440.

Carpenter, T.P., Fennema, F., & Franke, M.L. 2000. *Cognitively Guided Instruction: A Research Based Teacher Professional Development Program for Elementary School Mathematics* (Res. Rep. 00-3). Madison, WI: National Center for Improving Student Learning and Achievement in Mathematics and Science. (Available at <http://www.wcer.wisc.edu/ncisla/publications>)

Carpenter, T. P., Fennema, E., Franke, M. L., Levi, L., & Empson, S. B. 1999. *Children's mathematics: Cognitively Guided Instruction*. Portsmouth, NH: Heinemann. (Abstract available at <http://www.wcer.wisc.edu/ncisla/teachers/>)

- Carpenter, T.P., Fennema, Franke, 1999. "Cognitively Guided Instruction: A Knowledge Base for Reform in Primary Mathematics Instruction." *The Elementary School Journal* 97 (1): 3-20.
- Carpenter, T.P., M.L. Franke, V. Jacobs, and E. Fennema. 1998. "A Longitudinal Study of Invention and Understanding in Children's Multidigit Addition and Subtraction." *Journal for Research in Mathematics Education* 29:3-20.
- Fennema, E., T.P. Carpenter, M.L. Franke, L. Levi, V. Jacobs, and S. Empson. 1996. "A Longitudinal Study of Learning to Use Children's Thinking in Mathematics Instruction." *Journal for Research in Mathematics Education* 27 (4): 403-434. (Abstract available at <http://www.wcer.wisc.edu/ncisla/publications>)
- Franke, M.L., E. Fennema, T.C. Carpenter, E. Ansell, and J. Behrend. 1998. "Understanding Teachers' Self-Sustaining, Generative Change in the Context of Professional Development." *Teaching and Teacher Education* 14 (1):67-80. (Abstract available at <http://www.wcer.wisc.edu/ncisla/publications>)
- Villasenor, A., and H.S. Kepner. 1993. "Arithmetic from a Problem-Solving Perspective: An Urban Implementation." *Journal for Research in Mathematics Education* 24:62-70.

ABOUT THE DECADE OF BEHAVIOR

The Decade of Behavior initiative is a national collaborative effort designed to increase public awareness of and support for behavioral, social science and educational research. More than 50 major scientific organizations have formally endorsed the initiative, including the American Educational Research Association, the American Political Science Association, the American Sociological Association, the Society for Research in Child Development, and the American Psychological Association. Several Decade of Behavior educational efforts are underway. More information is available at <http://www.decadeofbehavior.org>.

ABOUT THE NCISLA

The National Center for Improving Student Learning & Achievement (NCISLA) in Mathematics & Science is a university-based research center focusing on K-12 mathematics and science education. Center researchers collaborate with schools and teachers to create and study instructional approaches that support and improve student understanding of mathematics and science. Through research and development, the Center seeks to identify new professional development models and ways that schools can support teacher professional development and student learning. The Center's work is funded in part by the U.S. Department of Education, Office of Educational Research and Improvement (PR/Award Number R305A600007), the Wisconsin Center for Education Research at the University of Wisconsin-Madison, and other institutions. More information about NCISLA is available at <http://www.wcer.wisc.edu/ncisla/>.