

# Research Update

## Center for Technology in Learning

Research and Innovation in Learning



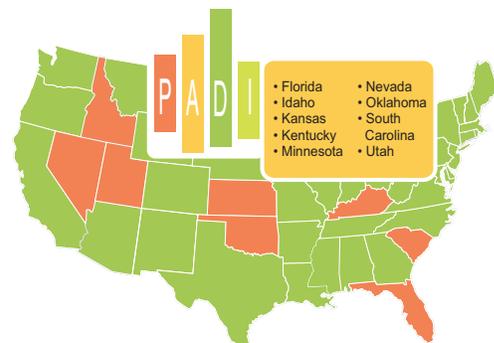
### Welcome!

## Designing, Developing and Validating Large-Scale Assessments in Science and Mathematics

Over the past two years, the Center for Technology in Learning (CTL) has supported large-scale state assessment programs in nine of the nation's states. CTL offers each state department of education a wide range of deep expertise in the development of instructional strategies and materials in math and science coupled with substantial experience measuring problem-solving and science inquiry. CTL's roles have included:

- Applying evidence-centered design (ECD) to guide the state's overall assessment design and development process;
- Refining statewide assessment tasks and items using the principles of universal design for learning (UDL);
- Technical assistance to help state's achieve success in the No Child Left Behind (NCLB)-related peer review process; and
- Designing validation studies to provide evidence of an assessment's technical qualities.

Much of this work has focused on assessments of science content and inquiry and mathematics. In Spring 2009, CTL, in collaboration with SRI's Center for Education and Human Services (CEHS), will design and develop assessment items and tasks for three states in mathematics. These assessments will be based on alternate achievement standards for students with the most significant cognitive disabilities. See [padi.sri.com](http://padi.sri.com) for information about our work in evidence-centered design and universal design for learning.



Principled Assessment Designs for Inquiry (PADI)

## SRI Proposes Model for Improving Mathematics Learning in High-Poverty Schools

The gap between low-income students' prior mathematics preparation and the requirements of a college preparatory math sequence is an urgent problem, particularly in light of recent moves to require successful completion of algebra and other secondary mathematics courses to earn a high school diploma.

With funding from the National Science Foundation, SRI reviewed the secondary mathematics education research literature from 1996 to 2006, identifying interventions that have been used with students entering high school with low achievement levels. SRI found that no existing intervention had all the necessary components for a comprehensive secondary math intervention. SRI's model for such an intervention, based on the research syntheses, suggests that schools and school systems need to consider not just the academic factors of curriculum and instruction, but also teacher variables, the organization of classes and time for instruction, and the expectations and social climate within the school. Reviews of the cognitive and comparative mathematics teaching and learning literature as well as the empirical literature on existing interventions are available in SRI's report. [Learn more here.](#)



Levers for Improving Mathematics Learning in High-Poverty High Schools

### CTL Highlight: Evidence-Centered Assessment Design Webinars

In December of 2008, CTL designed and hosted a three-webinar series on Evidence Centered Assessment Design using Principled Assessment Designs for Inquiry (PADI). Sponsored by the National Science Foundation, the webinars encompassed formal presentations, hands-on activities, and discussion. Participants, including university faculty, curriculum developers, and research and development non-profit organizations gained experience in using design patterns as an initial step in building an assessment. [Download the webinar resources.](#)

Learn more about how we use the analysis of learning activities and students' work to examine opportunities to acquire 21st century skills across diverse classrooms and countries, in the Spring 2007 CTL Research Update. This activity is part of SRI's global evaluation of Microsoft's Innovative Schools Program, which supports opportunities for innovative teaching and learning around the world. [Click here.](#)

