

September 2012

Research and Innovation in Learning

Research Update

Center for Technology in Learning



Improving Student Learning in Science with Contingent Pedagogies



The [Contingent Pedagogies project](#) addresses two challenges in formative assessment: helping teachers respond to the disciplinary substance of student thinking and providing teachers with different routes into the subject matter when they discover student difficulties.

Researchers from SRI International and the University of Colorado at Boulder developed a suite of tools to address these challenges. Tools include pedagogical patterns for formative assessment, questions to elicit student ideas, norms of scientific discourse, talk moves to probe student thinking, and activities to address persistent student difficulties.

A field test with 19 middle school Earth science teachers, 12 of whom participated in professional development and used the tools, revealed that students in Contingent Pedagogies classrooms scored significantly higher than students in comparison groups on assessments targeting core ideas in Earth science. Moreover, lessons of treatment teachers were more likely to use a broader range of academically productive talk moves.

Enhancing Teaching and Learning through Educational Data Mining and Learning Analytics



Researchers and developers of online learning systems, intelligent tutoring systems, simulations, games, and learning management systems are exploring ways to better understand and use data from learners' activities online.

The Office of Educational Technology at the U.S. Department of Education asked SRI to talk to industry experts and convene a panel of researchers to understand the state of the art, the state of the practice, and the emerging field of learning analytics and educational data mining. The resulting issue brief draws on industry applications to understand what is possible in education and explores challenges and barriers. The report concludes with recommendations for work going forward—not only how to collect, analyze, and visualize data, but also how to help people become smarter consumers of data and how to ensure integrity regarding privacy and ethics issues.

The report [was released in draft form](#) in April 2012, and an official release

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The Latest News

CTL and SRI's [Center for Software Engineering](#) released an open source browser [plugin](#) that lets educators enter metadata and paradata about open educational learning resource alignment and quality. The easy-to-use plugin collects, from a user, standards alignment (state and Common Core), quality, tags, and comments about the current web page and submits it to the [Learning Registry](#).

CTL is partnering with the [Artificial Intelligence \(AI\) Center](#) at SRI to develop Inquire, an intelligent textbook system for tablet computers that brings question-answering AI into the classroom. Inquire is part of the ongoing Project Halo research funded by Vulcan Inc. and developed at SRI International. [Watch this video on Inquire](#).

Don't miss upcoming CTL Research Updates featuring Cornerstone Maths!

Learn about the recent results of the [Cornerstone Mathematics project](#), which has developed technology-based curriculum materials for middle-grades students in England. Results from our pilot study show that students learn complex and important mathematics when using the materials, and teachers find that the materials are easy to use, and more effective than traditional teaching methods.

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is expected in October 2012 at the [Office of Educational Technology website](#).

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SRI International 333 Ravenswood Ave. Menlo Park, CA 94025

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