

Science of Learning Goes to College: Applying the Science of Learning in College and University Curricula

Cognition Toolbox Project Center for Excellence in Teaching and Learning, UNH

The Problem

“... one of the ubiquitous problems we face is the fragility of what is learned. **It's like dry ice. It just evaporates at room temperature and is gone.** Students seldom remember much of what they've read or heard beyond their last high-stakes exam on the material.”

Lee Shulman, 1997, “Professing the Liberal Arts”

“Despite all the gains made in understanding what happens when people learn, the truth is that most professors have gained relatively little from cognitive psychology.”

Diane Halpern, 2002, *New Directions for Higher Education*, pp. 41-43.

A Different Way

The Cognition Toolbox Project offers a different way to work with faculty on:

- > Course Design
- > Instructional Implementation
- > Student Learning Outcomes Assessment

Participating Faculty

We have worked with over 100 faculty in a wide range of courses, including: genetics; statistics; community psychology; stress; epidemiology; human reproduction; first-year English; chemistry; soils; molecular and cellular biology; health care financial management; science and practice of strength training; geographic information systems; chemistry for engineers; human occupation; introductory psychology; social psychology; American government; pre-calculus.

Our Approach is Based on Laboratory and Applied Research on the Science of Learning

Our Proposal to Faculty

- > Invite faculty to participate
- > Identify learning issue
- > Design an intervention
- > Implement the intervention
- > Complete learning assessments
- > Provide feedback to teachers and students

Lessons Learned

- > Our approach has promoted educationally important learning outcomes.
 - Visit our posters for examples of our work.
- > Establish close working relationships with faculty to ensure interventions are carefully implemented – monitoring is crucial.
- > Daniel and Poole's Ecological Approach to Pedagogical Research should be considered before applying laboratory-based research in academic courses (2009, *Perspectives on Psychological Science*, 4, 91-96).

Additional Resources

A University of Memphis Department of Psychology website lists 25 principles as well as other information related to what we know about human learning:

<http://www.psvc.memphis.edu/learning/whatwknow/index.shtml>

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