



Jennifer Bekki



Samantha Brunhaver



Adam Carberry



Shawn Jordan



at Arizona State University we are
innovative problem solvers helping to
shape the future of engineering
education research
poly.engineering.asu.edu

**We are here at ASEE 2015. If you see us
say hello!**



Jeremi London



Nadia Kellam



Micah Lande



Ann McKenna

Institute for STEM and Diversity Initiatives

- advocating for and nurturing underrepresented student and faculty success inside and beyond the classroom
- conducting and catalyzing STEM educational research.

IDoTeach

- Secondary school teaching certification option for engineering and computer science majors
- Creating pathways from undergraduate engineering to teaching in the K-12 classroom.

NSF Funded STEM Education Projects

- STEP, WIDER, REU, RET, S-STEM, I³

<http://stem.boisestate.edu>
donnallewellyn@boisestate.edu

<http://idoteach.boisestate.edu/>
noahsalzman@boisestate.edu

Clemson University Engineering & Science Education PhD and Certificate Programs



- The CU Engineering & Science Education Department offers a unique experience with engineering education research and science education research in one program.
- The ESED learning community provides strong mentoring, colleagues passionate about their research, and engagement with projects encompassing social capital, motivation, mathematical success, retention, self-efficacy, international experiences, and sustainability education.
- Contact ESEGradinquiries@Clemson.edu



Engineering Education Research at the University of Georgia

Contacts:

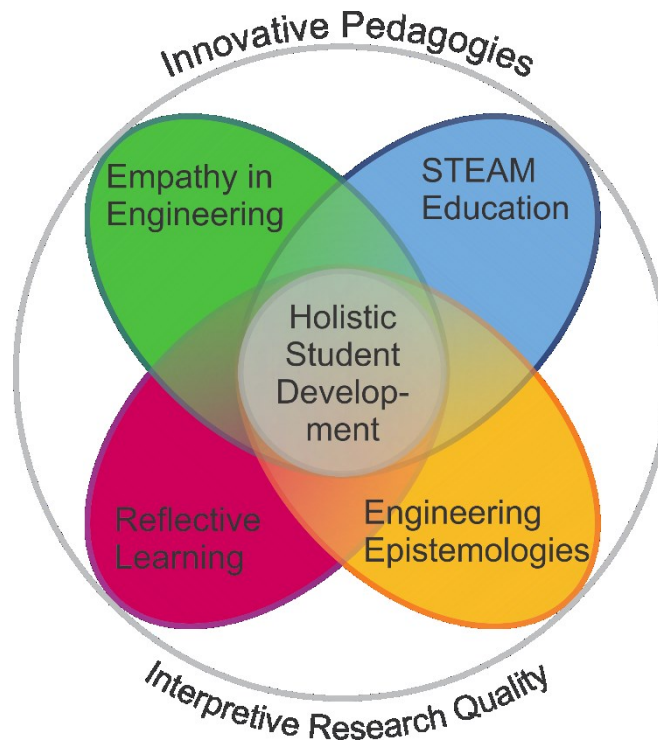


Dr. Jo Walther
jwalther@engr.uga.edu

We are a transdisciplinary, collaborative group that uses interpretive research methods to investigate diverse aspects of engineering education.



Research Areas:



Dr. Nicki Sochacka
sochacka@uga.edu

We include students as partners in research projects in a transdisciplinary, dynamic process of mutual learning and shared discovery.

Ask us about:





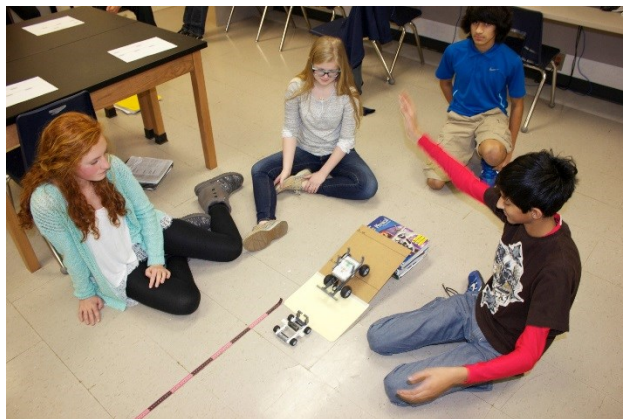
**Georgia Tech's Center for Education
Integrating Science, Mathematics &
Computing (CEISMC)**

PI: Dr. Marion Usselman

**SLIDER integrates project-based inquiry
learning and robotics into two middle
school physical science unit:**

The Accident Challenge: Energy

The Braking Challenge: Force & Motion



Discovery Research K-12
Award #0822241, 2009-2014



Aligns with NGSS
Disciplinary Core Ideas &
Practices



Uses engineering challenges
to engage and support
student learning



Emphasizes evidence-based
decision-making and
argumentation



Features LEGO robotic kits to
drive design and engagement

www.slider.gatech.edu

Research & Curriculum
Available at Our Site



PH.D. ENGINEERING - ENGINEERING EDUCATION CONCENTRATION PH.D. COMPUTATIONAL ANALYSIS AND MODELING

Director:

Katie Evans – Mathematics and Statistics

Associate Directors:

Marisa Orr – Mechanical Engineering

Galen Turner – Mathematics and Statistics

Engineering Education Concentration Director:

Kelly Crittenden – Mechanical Engineering

ISERC Members:

Mitzi Desselles – Psychology and Behavioral Sciences

Jean Gourd – Computer Science, Cyber Engineering

David Hall – Mechanical Engineering

Kathleen Johnston – Physics

Patrick O’Neal – Biomedical Engineering

Michael Swanbom – Mechanical Engineering

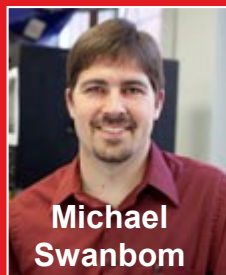
Heath Tims – Mechanical Engineering



Katie Evans



Marisa Orr



Michael
Swanbom

← Look for us here at ASEE!

U271I Online, open-source homework in engineering

M715 Assessing the Effect of Online Homework on Student Learning in First Circuits Course

T638B Attracting, Developing, and Retaining Diverse Talent in Mechanical Engineering

W429A Student Demographics and Outcomes in Industrial Engineering

Centre for Engineering Education (CEE) Universiti Teknologi Malaysia (UTM)

Activities of CEE

- Rigorous research in engineering education – grants, collaborations, publications, & PhD program
- Training on innovative T&L, and conducting research in engineering education → mentoring champions
- Host conferences, workshops, and Innovative Practices in Higher Education Expo (IPHEX)

Transforming engineering education through innovative evidence-based practices

- Focus on training and research in Engineering Education
- PhD in Engineering Education program
 - Started in 2008
 - Up till now, 13 students completed PhD
 - Current enrolment: 40 students
- Also: Joint PhD in Engineering Education with Aalborg University, Denmark
- Post-doctoral and faculty position available



Contact:

khairiyah@cheme.utm.my

<http://tree.utm.my>

Center for Engineering Education Research CEER

- Interdisciplinary DBER focus with
 - Funded STEM education research
 - Expanding MSU EER collaborations
 - Expanding MSU STEM education collaborations
 - Support for outcomes-based engineering education
 - Current and future faculty professional development

Mark Urban-Lurain
Interim Director, CEER
urban@msu.edu

University of Michigan Center for Research on Learning and Teaching in Engineering



Faculty & GSI
Development

'04 '05 '06 '07 '08 '09 '10 '11 '12 '13 '14
Attendance by Year



crlte.engin.umich.edu |



University of Michigan
**tenured/tenure-track faculty positions in
engineering education research**
to be announced soon!



To be added to an interest list,
email **eerfaculty@umich.edu**



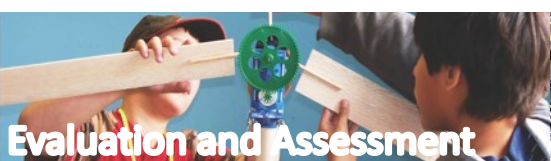
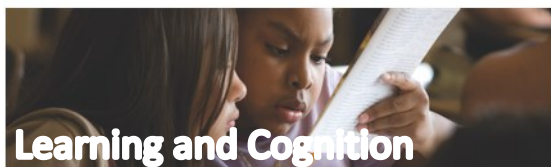
STEM



EDUCATION CENTER

 UNIVERSITY OF MINNESOTA

STEM Initiatives



The **STEM (Science, Technology, Engineering, & Mathematics) Education Center** is dedicated to conducting high quality research and disseminating findings in meaningful ways to influence STEM education on a global scale.

Highlighted Projects



I-Corps™ for Learning

www.asee.org/i-corps-l



 DEPARTMENT OF
Curriculum & Instruction

STEM Education Doctor of Philosophy (Ph.D.)

This integrated-style program is one of the first in the nation, and is designed to prepare scholars to conduct thoughtful disciplinary and interdisciplinary research in STEM education in order to assume roles as university faculty members, educational leaders, policy makers, and researchers.

Learn more at www.cehd.umn.edu/stem



Engineering Education Innovation Center



Department status pending

Success areas:

- Experiential first year program (1650 students)

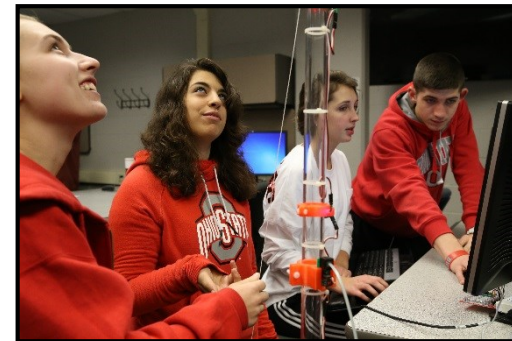
- Multidisciplinary capstone

- Engineering Technical Communication

- PhD program w/specialization in Eng Education
(since 2010)

- Humanitarian Engineering Center

Christy.14@osu.edu



The Leonhard Center for the Enhancement of Engineering Education

Founded in 1990 with a gift from William E. Leonhard

Mission includes:

- Leading and supporting enhancements in undergraduate engineering courses and programs
- Supporting assessment, including ABET
- Leading improvements in communication courses for engineering students
- Preparing graduate and undergraduate teaching assistants
- Conducting externally funded research

Current strategic focus areas:

- Evidence-based strategies to increase engagement
- Enhancing ethics education for graduate and undergraduate students
- Assessment of learning environment
- Enhancing writing skills of undergraduates

*For more information, contact Tom Litzinger at TAL2@PSU.EDU
or visit www.engr.psu.edu/leonhardcenter/*



Tom Litzinger, Center Director



Sarah Zappe, Director
Assessment & Instructional Support



Michael Alley
Engineering Communications





my.pitt

Swanson School of Engineering

Contact Us

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ENGINEERING EDUCATION RESEARCH CENTER

A Center of the Swanson School of Engineering

FACULTY

GRAD STUDENTS / POST DOCS

ENGINEERING ED COMMUNITY

WHO WE ARE

SERVICES

EFFECTIVE TEACHING

RESEARCH

CONNECTIONS

EVENTS/NEWS



► WHO WE ARE

Advance Engineering Education through Research

The Engineering Education Research Center was

Upcoming Events

[+ VIEW DETAILS](#)

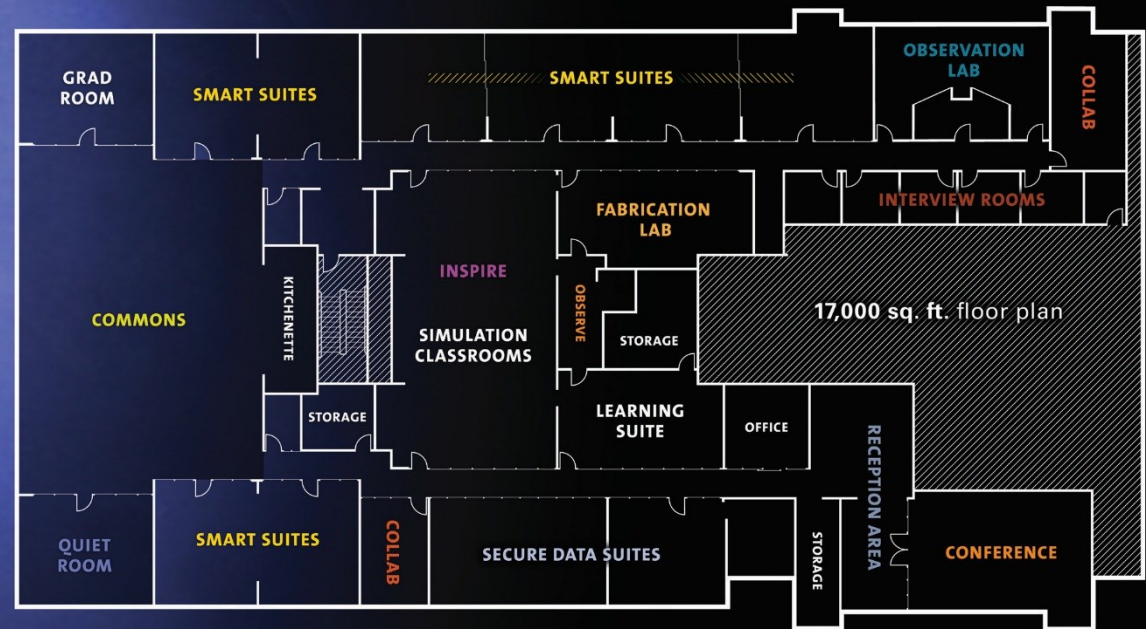
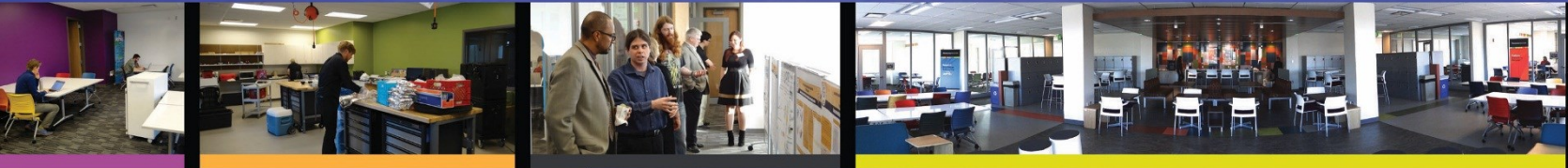
Building a Sustainable World: Teaching Engineering and Sustainability Practices in the Middle School Classroom

06-22-15 to 06-23-15 | 08:00 AM | Mascaro Center for Sustainable Innovation

Building a Sustainable World: Teaching Engineering and Sustainability Practices in the Middle School Classroom

... [Learn more](#)

Interdisciplinary Engineering Education Research Laboratory



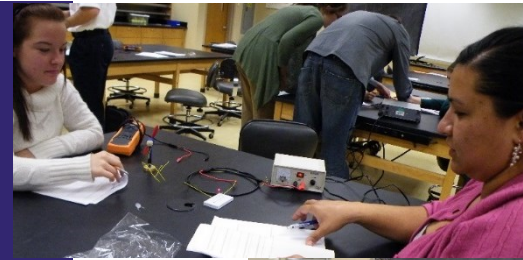
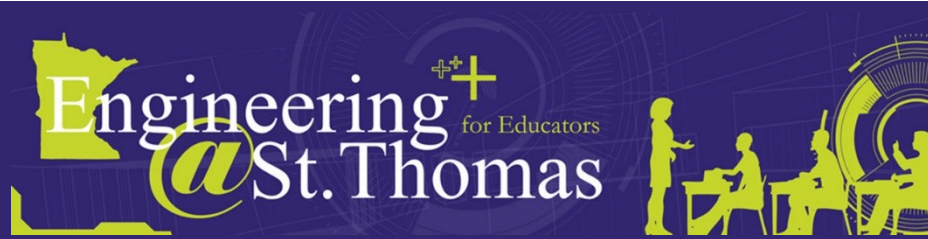
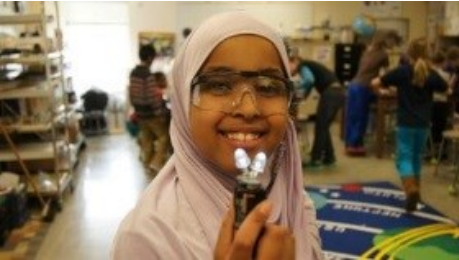


Center for the Practice and Scholarship of Education

Improving engineering education by:

- ✓ **supporting faculty working to improve student learning and enhance instructional effectiveness**
- ✓ **assisting faculty engaged in educational scholarship and assessment**
- ✓ **facilitating the sharing of ideas and practices within the Institute and the larger educational community,**
- ✓ **promoting faculty development nationwide through the Making Academic Change Happen workshop (MACH)**





The Center for Engineering Education (CEE) is a partnership between the **University of St. Thomas' Schools of Engineering and Education**

The **UST Center for Engineering Education** offers:

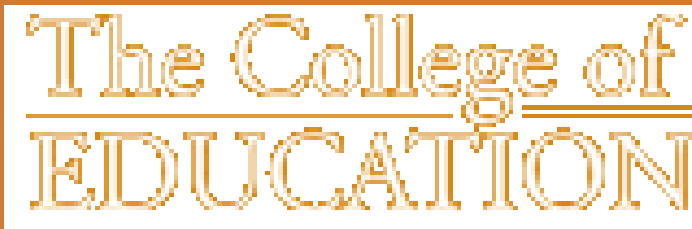
- a **graduate certificate** in Engineering Education
 - an **undergraduate minor** in Engineering Education
 - professional development **workshops**
-

The mission of CEE is to prepare future and current P-12 educators to teach **integrated STEM education with an engineering focus.**



<http://www.stthomas.edu/cee/>

Director: Dr. AnnMarie Thomas aphomas@stthomas.edu



STEM Education

Master's & PhD Programs (97 students total)

Past and Current Research

UTeach Engineering (NSF-MSP)
Beyond Blackboards (NSF-ITEST)
VaNTH (NSF-ERC)
Teacher Training for Engineering
IPRO - Programming Standing Up
Adaptive Expertise in Engineering
K-12 LEGO Robotics
Discourse in K-12 engineering teams
National HS Curriculum Project

Faculty

David Allen (Chem Eng)
Leema Berland (STEM-Ed)
Richard Crawford (Mech Eng)
Ken Diller (BioEng)
Jill Marshall (STEM-Ed)
Anthony Petrosino (STEM-Ed)
Catherine Riegler-Crumb (STEM-Ed)



UNIVERSITY OF TORONTO
FACULTY OF APPLIED SCIENCE & ENGINEERING

NEW!

COLLABORATIVE PROGRAM IN ENGINEERING EDUCATION

Students pursue **traditional graduate degrees** in **engineering** or **education**.

Studies are **enriched** through thesis research and courses in **engineering education**.



Now
accepting
applications

Launching this September:

Offered at the **Master's and Ph.D. levels** through the
Faculty of Applied Science & Engineering and the
Ontario Institute for Studies in Education.

Contact:

PROFESSOR GREG EVANS, greg.evans@utoronto.ca | www.gradstudies.engineering.utoronto.ca





Mission: Improving Education through Engineering

- An interdisciplinary center that includes faculty in engineering, education, child development and computer science.
- Ongoing research in engineering teaching and learning, outreach, and educational technology development.
- Highlighted projects:
 - Novel Engineering: Integrating Engineering and Literacy*
 - Interactive Learning and Collaboration Environment (InterLACE)*
 - OKEE - Online K-12 Engineering Education program*
- *Ph.D. and M.S. in Engineering Education (in cooperation with Tufts Department of Education)*

Education
Research

Engineering
Research

Outreach



Search

EGN: Enhancing MetaCOgnition

[Home](#)[Students](#) ▶[Graduate Program](#) ▶[Faculty & Staff](#) ▶[Research](#) ▶[Engineering Design
Thinking & Learning](#)[Problem-Solving or
Framing](#)[Teaching & Learning
Strategies](#)[REU Site Program](#)

Discover Engineering Education

An increasing number of engineers, prepared to meet the challenges of ever-fluctuating changes in technology, are required worldwide. This program is rising to meet the challenge by training the future leaders responsible for designing engineering course pedagogy, curriculum, and leveraged research to improve learning outcomes. Our research-active faculty members are adept at teaching and developing in our graduate students the skills and expertise identified in our [mission statement](#).

Featured Projects



[Undergraduate Researcher to present locally and nationally!](#)
Christopher Green, an undergraduate research assistant of Dr. Goodridge within the Engineering Education Department, has recently had some of his research work accepted for presentation at the Utah Conference for Undergraduate Research (UCUR) in Provo, National Conferences on Undergraduate Research (NCUR)

Quick Links

[EED Open Access Computer
Lab](#)

Upcoming Events

June 08, 2015
[Engineering State](#)

[» More Events](#)

Engineering Education



Graduates of the program will have the knowledge to:

- Conduct and direct research in engineering education
- Develop, review and critique effective research designs
- Effectively teach engineering subjects
- Design and assess engineering courses
- Address critical issues facing engineering education

Fast Facts:

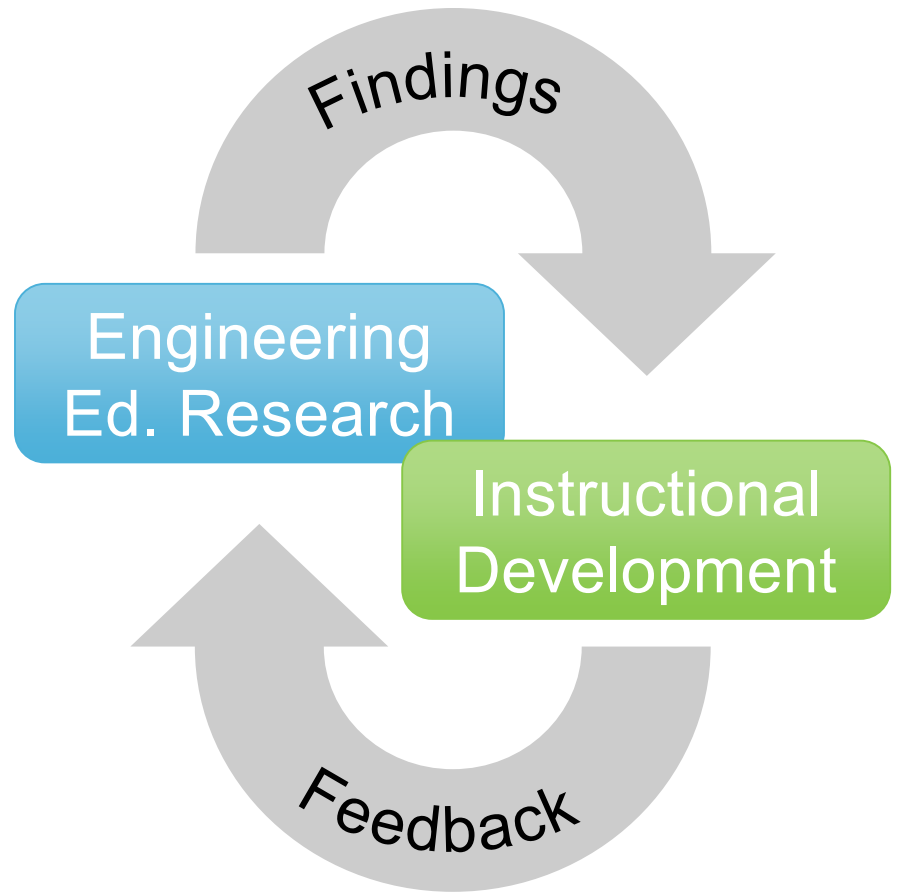
- Ph.D. began in 2008
- 21 Faculty
- 31 PhD Graduate Students
- 6 NSF Career Awardees
- 1 PECASE Award
- 2 NSF GRFP Awardees

Funding

Generous Funding is available to incoming students and current students with satisfactory degree progress

Application & more information

www.enge.vt.edu



First campus-based center in U.S. to combine research and instructional development missions

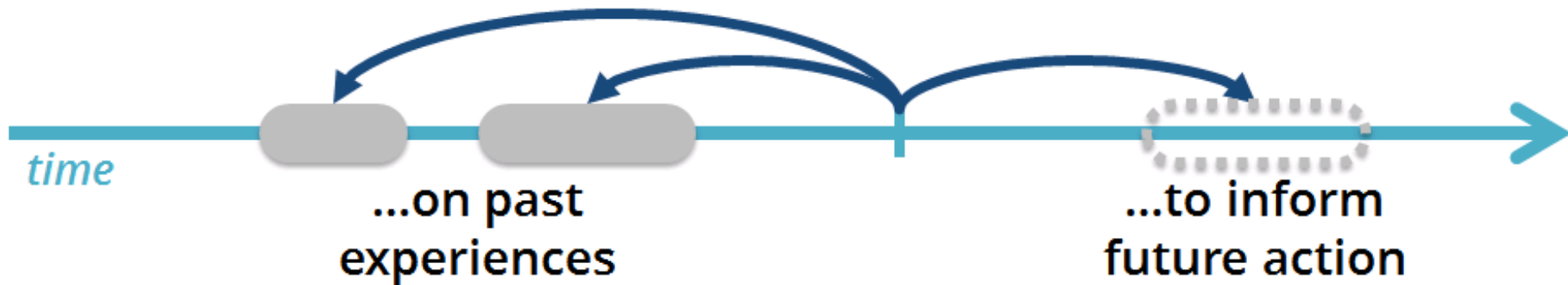
http://bit.ly/uw_celt

CPREE

CONSORTIUM TO
PROMOTE REFLECTION IN
ENGINEERING EDUCATION



Reflection: Thinking...



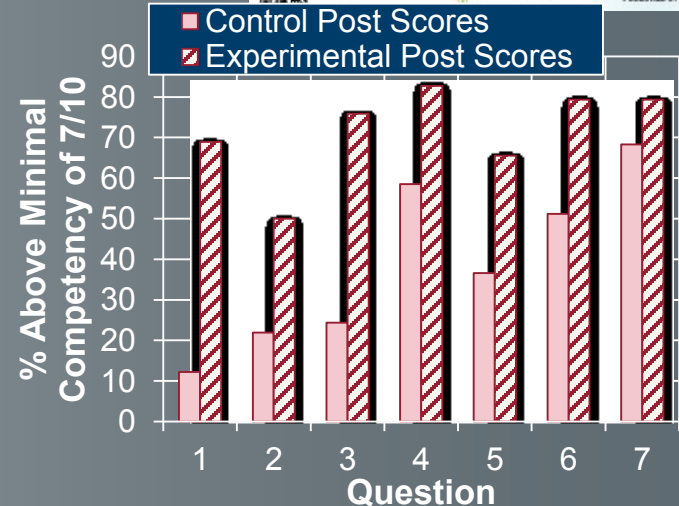
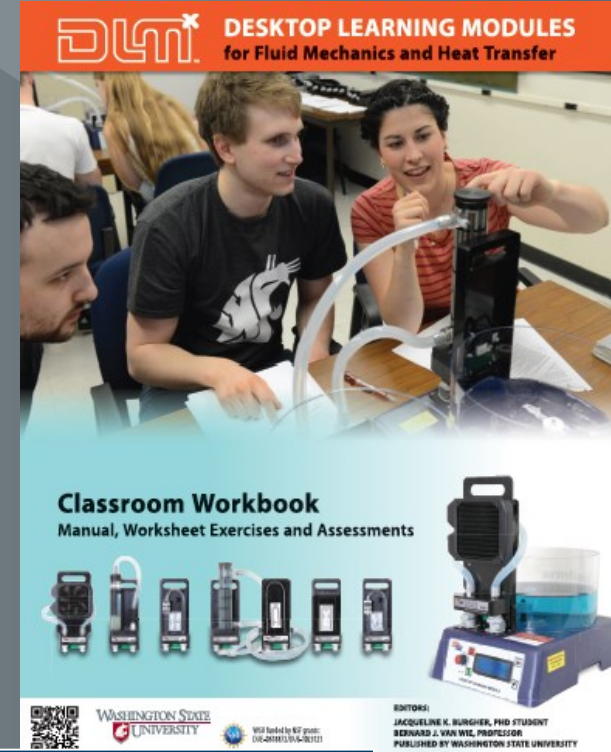
Goals:

1. Cataloguing 120 examples of reflection activities in engineering education across 12 campuses
2. Promoting more reflection in engineering education—18,000 student and 240 educator experiences



Engineering Education Research at Washington State University

- Hands-On Active Learning with Desktop Learning Modules (bvanwie@wsu.edu)
 - B. Van Wie, R. Richards, P. Dutta, D. Thiessen, O. Adesope
- Cataloging and Characterizing Engineering Education Assessments (denny.davis@wsu.edu)
 - D. Davis, H. Davis, M. Trevisan, B. French, J. LeBeau
<http://assess.tidee.org>
- Human-centered Environments for Learning and Programming (hundhaus@wsu.edu)
 - C. Hundhausen, R. Zollars
<http://helplab.org/>
- Exploring Social Programming Environments in Early Computing Courses (hundhaus@wsu.edu)
 - C. Hundhausen, O. Adesope



Engineering Education Community Resource

A web catalog for the international engineering education community, including...

- Degree programs and centers
- Societies, conferences, and journals
- Job listings

<http://bit.ly/engredu>

