

PERC 2013

*From Fearing Physics to Having
Fun with Physics:
Exploring the Affective Domain
of Physics Learning from
Multiple Perspectives
Portland, Oregon
July 17 - 18*

ABOUT THIS YEAR'S THEME

Responses to learning physics are strongly emotional, for better or worse. While many students fear physics, an implicit goal that drives many PER researchers is the desire to cultivate in our students a love of the discipline. Nonetheless, affective issues are rarely explicitly addressed in our research or curricula. This may reveal a tacit assumption within our community that such "hot cognition" has little bearing on the "cold cognition" conceptual goals of physics. Recent research calls such assumptions into question, and the goal of this PERC is to highlight research across many disciplines that demonstrate the role of affect in science education. While affect was once seen as a hindrance to cognition, a wide array of research seems to be converging towards a common theme: *affect is fundamental to cognition*. As a community, attending to affective issues in the teaching and learning of physics is pivotal to our understanding of students' engagement, achievement, and retention in the discipline.

The central goal of PERC2013 is to consider affect in physics education from multiple disciplinary perspectives. We invite sessions that are designed to explicitly attend to affect in the teaching and learning of physics, in part by incorporating active engagement and experiential learning techniques. Since the best cross-pollination of ideas often happens outside a seminar room, we will incorporate a blending of social, academic, and online spaces utilizing local venues, social media, and crowd-sourcing technologies.

We look forward to seeing you there!

The 2013 PERC Organizing Committee,

Dedra Demaree — Oregon State University
Leslie Atkins — CSU, Chico
Luke Conlin — Tufts University
Sissi Li — CSU, Fullerton
Yuhfen Lin — Florida International University

Invited Speakers

Sian L. Beilock



Sian L. Beilock is a professor in the Department of Psychology at the University of Chicago. Her research program sits at the intersection of cognitive science and education. She explores the cognitive and neural substrates of skill learning, including embodied cognition of physics concepts, as well as the mechanisms by which performance breaks down in high-stress or high-pressure situations. Her work sheds light on the connections between affect and cognition in learning math and science, in part by exploring the mechanisms of stereotype threat and the effects of anxiety on achievement in math and science classrooms.

Noah Finkelstein



Noah Finkelstein is a professor of physics at the University of Colorado, Boulder. There, he co-directs the Physics Education Research group and directs the Integrating STEM Education program. Noah studies conditions that support students' interests and abilities in physics at multiple levels, with research projects ranging from the dynamics of classroom learning to the institutional level decisions that can support students' learning in the classroom and beyond. His theoretical work seeks to build models of learning that emphasize the critical and inextricable role of context in student learning of physics. His experimental work has revealed some of the affective dimensions of the contexts of physics learning, including the influence of stereotype threat on exam performance and the impact of faculty practices on students' comfort with discussing physics with peers and instructors.

Ayush Gupta

Ayush Gupta is a research assistant professor in the Department of Physics at the University of Maryland, College Park and a member of the Physics Education Research Group. From a scientific perspective, he is interested in gaining a better understanding of how the human mind operates and learns. From a social



perspective he wants to use this understanding to promote a more equitable education system and an overall scientific and rational way of thinking in society - awareness and education being the slow but steady path towards greater social justice without instability.

Marja-Liisa Hassi

Marja-Liisa Hassi has a Master's degree in mathematics and a Ph.D. in education from the University of Helsinki, Finland. Her research interests include mathematics learning and problem solving, affective factors and learning, motivational processes, and self-regulated learning. She serves as an adjunct professor for the Faculty of Behavioral Sciences at the University of Helsinki, and has worked in the Ethnography and Evaluation Research group at the University of Colorado at Boulder. She has collaborated internationally with education and mathematics education researchers and contributes to faculty professional development and assessment of technical and vocational education initiatives in developing countries.



Kevin Pugh

Kevin Pugh is an associate professor of psychology at the University of Northern Colorado. His work focuses on investigating transformative experience -- experiences where students actively use curricular concepts to see and experience the world in a personally meaningful, new way. The primary goal of this work is to better address why school learning often fails to make a difference in students' everyday, out-of-school experience. Related to this work are investigations of influences on transformative experience, methods of teaching for transformative experience, and the relationship between transformative experience and enduring understanding in the context of science education. Research on motivation, transfer of learning, and Dewey's theory of aesthetic experience are important influences on his work.



Important Dates

May 1 — Abstract submission opens
May 24 — Invited abstracts due
May 31 — Contributed abstracts due
June 21* — Papers due (*anticipated)

Further information will be available at:

www.compadre.org/per/conferences/2013/