Invited Symposium:
Empirical Studies of the Interplay of Cognitive and Affective Factors in Science Learning

Organizer: Christian Schunn, University of Pittsburgh

Presenters:
  Mac Cannady, University of California - Berkeley
  K. Ann Renninger, Swarthmore College
  David Hammer & Lama Jaber, Tufts University
  Christian Schunn, University of Pittsburgh

Discussant: Heidi Schweingruber, National Academy of Sciences

Symposium Abstract:
Research on the cognitive science of learning has traditionally acknowledged that affect/motivation play important roles in learning but have treated it as wholly independent and thus safe to ignore in particular cognitive science studies. Cognitive factors are thought to be the important drivers of learning, assuming students have at least met some basic motivational threshold; affect is not thought to directly influence learning. Here we look at recent work in the context of science learning that questions these foundational assumptions of priority and independence. Cannady presents a large-scale database analysis of long-term outcomes in STEM careers as driven by early skill and interest. Renninger shows data suggesting that motivational interventions have implications for both affective and cognitive science learning outcomes. Hammer and Jaber argue that skills of science inquiry are fundamentally affective as well as cognitive in nature. Finally, Schunn shows that there are reciprocal relationships between cognitive and affective variables and successes in science learning.