Investigating student motivation, learning, and transfer

Timothy Nokes-Malach
Associate Professor, Psychology Department
University of Pittsburgh

Abstract:

A critical problem in both psychology and education is to understand how students transfer their prior knowledge and experience acquired in one situation to solve novel problems in another. This is a particularly challenging problem for students in the STEM disciplines who often show little conceptual understanding and little ability to transfer their knowledge to solve new problems on a test. Not only do students struggle with conceptual understanding and transfer, but they also show declines in motivation for science during the middle school years. Prior research suggests there is great potential and opportunity to address these challenges by integrating past work on cognitive and motivational approaches to understanding learning and transfer. In our research, we aim to integrate these separate strands of past work by exploring the relations between different types of science instructional activities, student motivation (e.g., beliefs about self-efficacy and achievement goals), learning, and transfer. We investigate two common forms of instructional activities comparing “tell-and-practice”, in which students receive direct instruction followed by problem-solving, to “preparation for future learning (PFL)”, in which students first engage inquiry tasks and then are given direct instruction. In this talk, I will present some recent results of the relation between 6th-grade students’ self-reported motivation and their learning and transfer outcomes in science. We hope to identify forms of instruction that can promote student motivation, learning, and knowledge transfer.

Biosketch:

Research Interests: Tim’s research examines human learning, problem-solving, and motivation with an aim to understand, predict, and promote knowledge transfer. An overarching goal is to develop instructional theories to promote learning and transfer in mathematics and science. Other interests include meditation and wilderness. http://psychology.pitt.edu/people/timothy-nokes-malach-phd