

HIGHER-LEVEL COGNITION, INSTRUCTION, AND COMPLEX LEARNING

Building on the strong connection of the cognitive program with the Learning Research and Development Center (LRDC, <http://www.lrdc.pitt.edu>), many faculty and students in the cognitive program explore aspects of higher-level cognition and the interaction of higher-level cognition with instruction and learning. Topics studied in higher-level cognition include executive function, analogy, creativity, problem solving, decision making, causal reasoning, spatial reasoning, transfer, and categorization, with bridges into social cognitive processes (e.g., creativity and problem solving in groups), motivation, metacognition, and the development of higher-level cognition.

This research often connects to complex real-world settings, like classrooms, museum exhibit design, engineering design, scientific discovery, mathematical problem solving, and medical decision making. While much of the research uses psychology lab techniques for experimental rigor, some work involves studying experts and novices working in real world settings on real world tasks. Relevant methods include eye-tracking, gesture analysis, and verbal protocol analysis.

Science often benefits from explorations of the applications of theoretical knowledge. The cognitive program at the University of Pittsburgh has a strong connection to education and instruction. This educational research ranges from very basic examinations of the psychological mechanisms underlying learning to very applied research that builds interventions heavily-guided by cognitive psychology theories (e.g., the design of intelligent tutoring systems, the design of peer teaching systems, and the design of museum exhibits).

Most cognitive faculty, post-docs, and students are physically housed in LRDC, which also contains faculty, post-docs, and students in social psychology, computer science, education, and other areas, all studying issues related to learning. The close proximity to research from multiple disciplines as well as opportunities to participate in multidisciplinary research projects greatly enriches the intellectual environment.