

CCSU
DEPARTMENT OF MATHEMATICAL SCIENCES

COLLOQUIUM

Friday, March 14

3:00 – 4:00 PM

Maria Sanford, Room 101

LEVERAGING THEORIES OF COGNITION TO INVESTIGATE MATHEMATICAL PROBLEM SOLVING

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Abstract: Writings on mathematical problem solving have existed since antiquity; however, research into the complex phenomenon has largely been formalized in the time following the seminal publication of George Pólya's famous text, *How to Solve It*. Since, a great deal of research has been dedicated to furthering our understanding of the intricate set of variables influencing mathematical problem solving, with recent developments shedding light on the cognitive abilities related to success in the endeavor. Our recent work studying the problem-solving behaviors of adult mathematics students of varying levels of mathematical expertise has led to insights about the development of these abilities over time as well as the influence that social and affective variables have on this.

In this presentation, the prominent research in mathematical problem solving and theories of cognition will be reviewed to provide context for our current work. Then, findings from our recent empirical investigations involving adult mathematics students will be detailed, which provide insights into the role certain cognitive abilities play in mathematical problem-solving situations. These findings will also be given within the larger context of improving learning outcomes in mathematics. Directions for future research and ongoing work will also be briefly discussed.

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For further information: gotchevi@ccsu.edu; 860-832-2839; <http://mathcolloquium.sites.ccsu.edu/>