

MAY 2017



THE GER EXCHANGE

Promoting high-quality scholarly research in geoscience education.

Webinar: Understanding and Promoting Spatial Learning Processes in the Geosciences

In the second installment of the [IRIS webinar series](#) on Geoscience Education Research, Thomas Shipley (Temple University), Nicole LaDue (Northern Illinois University), and Mike Brudzinski (Miami University of Ohio) present a model and suggestions for developing an interdisciplinary network, examples of spatial problems facing students in your classes, and suggestions for classroom practice that can help students overcome spatial challenges.

Supporting the development of spatial thinking in a science curriculum requires an interdisciplinary effort that combines knowledge of the disciplinary science with education and psychology expertise. The network is designed to create a "trading zone" where theory and practice converge so that research on education and cognitive psychology can be influenced by disciplinary geoscience content, and vice versa, to result in new designs for teaching tools and new insights into the working of the human mind-brain. The network seeks to expand our fundamental understanding of the science of learning by characterizing the different types of spatial reasoning required for the practice of a complex spatial science, and to develop new supports for spatial learning challenges that have been barriers for student learning.

Tools developed in this project are designed to allow students to self-correct conceptual errors in their understanding of scientific concepts. The practice of the network will be illustrated with two examples of the application of: 1) Spatial feedback, which is feedback in the form of a spatial error that allows the mind-brain to guide learning, and 2) Spatial accommodation, which is the constructing and reconstructing of mental models to accurately incorporate spatial information to improve inaccurate mental models from spatial feedback. [Check out the webinar here.](#)

GER Long-Range Planning Committee

Are you interested in helping to tackle GER issues that require a multi-year focus? If so, the Long-Range Planning Committee needs you! We are currently working on topics like creating and hosting a toolbox of resources for GER members at different stages of their careers, supporting GER faculty with hiring, tenure, and promotion, and growing the GER footprint in the geosciences and the larger DBER community. If these or other long-duration kinds of topics interest you, contact Karen McNeal, current GER vice-president and chair of the Committee (karen.mcneal123@gmail.com) to help shape the future of the GER Division!

Job, Internship, and Scholarship Opportunities

- [Post-Doctoral Fellow](#), Department of Youth Development and Agricultural Education, Purdue University (deadline **May 1, 2017**)
- [Assistant Research Scientist](#), NSF-IUSE project, University of Arizona (Position number A21630; review begins **May 15, 2017**)
- [Director of Professional Development in Teaching and Learning](#), Wisconsin Institute for Science Education and Community Engagement (WISCIENCE), University of Wisconsin, Madison (close date **May 19, 2017**)
- [Postdoctoral Research Associate](#), Center for Teaching Excellence, University of Virginia (Position number #0620549)
- [Talent Pool Internship](#), American Geophysical Union (AGU, Washington, DC)
- [Education Coordinator](#), Space Science Institute, National Center for Interactive Learning (Boulder, CO)

2017 GSA Annual Meeting

Are you planning to attend the upcoming 2017 GSA Annual Meeting in Seattle, WA (Oct. 22-25)? If so, consider submitting an abstract to one of the following co-sponsored or related sessions! **Abstracts** are due **Tuesday, Aug. 1**.

- T99: ***Augmented and Virtual Reality in Geoscience Education***. Handheld and immersive augmented and virtual reality experiences make it easier to bring more realistic, engaging experiences into our classrooms. This session will explore teaching and research applications using augmented reality (AR) and virtual reality (VR). Conveners: Rachel M. Atkins, Christine M. Clark, & Shelley J. Whitmeyer.
- T100: ***Barriers, Misconceptions, and Progress in Improving Climate Literacy and Strategies for Communicating about Climate Change***. This session will focus on research and evaluation of climate literacy efforts, effective ways of communicating about climate change in general, but also in culturally relevant contexts. Conveners: Anne U. Gold, Mona Behl, & Bonnie Murray.
- T102: ***Beyond the Road-Cut: Virtual, Local, and Nontraditional "Field" Teaching and Learning Experiences***. Virtual exploration, museum-based assignments, and analysis of geoscience on campus can be more inclusive ways to enhance students' conceptual learning and motivation. This session welcomes presentations describing nontraditional "field" experiences and evidence of their effectiveness. Conveners: Lauren Neitzke Adamo, Kelsey S. Bitting, & Patricia Irizarry-Barreto.
- T113: ***Geoscience Education Research: Implications for Undergraduate Geoscience Teaching and Learning***. This session highlights how GER findings can be translated into teaching and identifying future directions for research with the broader geoscience community. Specific topics may include active learning, teaching with technology/modeling, diversity, and interdisciplinary collaborations. Conveners: Kristen St. John, Karen McNeal, Anne Gold, & Katherine Ryker.
- T120: ***Making Thinking Visible: Actions and Expressions of Problem Solving and Decision Making in the Geosciences***. This session presents evidence-based studies that aim to make thinking visible in order to understand geologic problem solving. We encourage rigorous research investigating approaches and techniques to externalize, document, and understand geologic thinking and cognition. Conveners: Eric M. Riggs, Lauren N. Holder, & Angela Van Boening.
- T125: ***Preparing the Next Generation of Geoscience Educators: Research on Teacher Education***. This session highlights research on current and future geoscience teacher attitudes, beliefs, knowledge, and practices across K-12 and higher education, including research on the preparation of teaching assistants and future faculty. Conveners: Heather L. Petcovic & Katherine Ryker.
- T131: ***Translating Professional Development Experiences into the Classroom***. Here is an opportunity for faculty to share ways in which they were inspired by their professional development to integrate, adapt, or develop new instructional strategies and/or curriculum to enhance the student learning experience in a diverse range of course environments. Convener: Megan Jones.

Upcoming Grant and Award Deadlines

- International Association for Geoscience Diversity *Inclusive Geoscience Education and Research Awards* Nomination Deadline **May 1, 2017**
- National Science Foundation *Research Experiences for Undergraduates* Full Proposal Deadline **May 26, 2017**
- National Science Foundation *Faculty Early Career Development Program (CAREER)* Full Proposal Deadline **July 21, 2017**

Join the [STEM DBER Alliance](#)

The STEM DBER Alliance is a cross-disciplinary DBER community intended to advance and disseminate knowledge and theory that promote learning and success for all students across STEM fields. Recent topics of updates and conversation include using industry partnerships with courses to promote STEM diversity, the importance of a sense of belonging in learning environments, and the upcoming Cultivating Ensembles in STEM Education and Research conference. [Join the STEM DBER Alliance now](#) to participate in these important conversations, or start a cross-disciplinary discussion of your own!

"Accelerating Science Education" Conference

The Mobile Laboratory Coalition (MLC) will host the "[Accelerating Science Education](#)" conference July 25-28, 2017 at Rutgers University in New Brunswick, NJ. Join STEM professionals, educators, and other partners from around the world to learn about innovative advances in informal science education. [Poster abstracts](#) are due **July 1**.

Submit to the GER Exchange

NAGT-GER provides monthly updates on professional opportunities, funding, articles of note, researcher profiles, and other content of interest to our membership. Please consider [contributing items](#) of interest for inclusion in future editions of the Exchange!

For questions, or to join the GER Communications Committee, contact Communications Committee Chair [Kelsey Bitting](#).