

DBER Tips for the Geosciences

Strategies for aspiring authors for “Journal of Geoscience Education”

1. Do your homework, and put your work in a literature-based context.
2. Provide a well-defined purpose with methods that are appropriately explained and applied.
3. Description of the study setting and population
4. Evidence of effectiveness is essential to a strong argument: conclusions need to be evidence based with validity and reliability
5. Do not just report results; discuss why they are meaningful both to your particular situation and more broadly.
6. Have IRB approval
7. ****Remember, you don't have to do this alone: don't be afraid to collaborate****

St. John et al. (2016) Un-packaging Manuscript Preparation and Review Guidelines for Curriculum and Instruction and Research Papers. JGE: 64(1):1-4.

Strategies for aspiring authors of “In the Trenches”

1. Document your experiences with new teaching methods in an informative, accessible, and entertaining way
2. Share your thoughts about teaching and interesting ideas – start a trend!
3. Share you great photos with the NAGT community (or have your students share their photos)

Geo-DBER Future Research Needs:

1. Students' conceptual understanding (DBER Ch 4)
 - Misconceptions and preconceptions
 - Concept inventories
2. Cognitive domain and problem solving (DBER Ch 5)
 - Quantitative reasoning
 - Spatial reasoning
 - Using and understanding models, simulations, and visualizations of Earth processes
3. Instructional strategies to improve geoscience learning (DBER Chap 6)
 - Design, use, and evaluation of different instructional strategies and their effectiveness in various settings (e.g., large lecture, lab)
 - Role of technology (e.g., hybrid learning, e-learning)
4. Students' self-regulated learning / metacognition
 - Basic learning assessment methods: Minute papers, knowledge surveys, etc.
 - Developing students' study skills
5. Affect and geoscience students (DBER Chap 7)
 - Attitudes and motivation
 - Values
6. Access and success
 - Recruitment and retention of geoscience students
 - Broadening participation, diversity and inclusion
7. Nature of science / nature of geoscience (DBER Chap 7)
 - Teaching nature of science throughout the curriculum (e.g, introductory, upper-level)
 - Using research and research-like experiences
8. Elementary, middle, and secondary teacher education
 - Pre-service teacher preparation
 - Development and assessment of NGSS curriculum
9. Professional development of college/university educators
 - Preparation and continuing professional development for geoscience faculty
 - Preparation and professional development of teaching assistants

Source: http://nagt.org/nagt/profdev/workshops/geoed_research/ger_topics.html