Place-based and Culturally Valid Geoscience Curriculum and Assessment Development

Steven Semken, Arizona State University
semken@asu.edu

Emily Geraghty Ward, Rocky Mountain College
emily.ward@rocky.edu

Julie Libarkin, Michigan State University
libarkin@msu.edu

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Place-based (PB) methods of teaching geoscience leverage sense of place (meanings and attachments affixed to places) of students and instructors, as they are situated in surrounding environments and landscapes, infuse local and indigenous ways of knowing, and engage with regional and local issues bearing on environmental and cultural resilience and sustainability.

Place-based teaching means situating content and inquiry in the landscapes and communities of specific, typically local, places and regions. It is applicable to formal classroom, lab, and field teaching as well as free-choice teaching or interpretation. PB curriculum is organized according to the attributes of place, and sense of place can be used as an authentic, measurable learning outcome.

Authentic assessment closes the circle on effective place-based teaching. One can measure changes in students’ senses of place as a learning outcome using valid psychometric surveys or ethnographic observations.

Assessment of geoscience content learning presents a different problem. If valid published instruments are used for this purpose, cultural discourse is possible. Cultural discordance can compromise the validity of such instruments to assess learning in such student groups. Cultural validation is a research-based and tested method that minimizes cultural discordance of assessments while retaining other forms of validity and following best practices for assessment design.