



The Special Place Project: Efficacy of a Place-Based Case Study Approach for Teaching Geoscience

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Achieving geoscience literacy of the general population has become increasingly important world wide as ever more connected and growing societies depend more and more on our planet's limited natural resource base. Building citizen understanding of their dependence on the local environment, and the geologic processes which created and continue to change it, has become a great challenge to educators at all levels of the education system. The Special Place Project described in this presentation explores use of a place-based case study approach combining instruction in geoscience content with development of observation, reasoning, writing and presentation skills. The approach allows students to select the locations for their individual case studies affording development of personal connections between the learner and his environment. The approach gives instructors at many grade levels the ability to develop core pedagogical content and skills while exploring the unique geologic environments relevant to the local population including such critical issues as land use, resource depletion, energy, climate change and the future of communities in a changing world. The geologic reasons for the location of communities and key events in their histories can be incorporated into the students' case studies as appropriate. The project is unique in placing all course instruction in the context of the quest to explore and gain understanding of the student's chosen location by using the inherently more generalized course content required by the curriculum. By modeling how scientists approach their research questions, this pedagogical technique not only integrates knowledge and skills from across the curriculum, it captures the excitement of scientific thinking on real world questions directly relevant to students' lives, increasing student engagement and depth of learning as demonstrated in the case study reports crafted by the students and exam results. Student learning of topics directly touched upon by the case study, such as geomorphologic features and processes observable at Earth's surface, is compared to learning on more abstract topics, such as subsurface Earth structure and tectonic processes, to provide a quantitative assessment of this pedagogical approach.