Northeastern (46th Annual) and North-Central (45th Annual) Joint Meeting (20–22 March 2011)
Paper No. 57-7
Presentation Time: 9:30 AM-9:45 AM

INCORPORATING CONCEPT SKETCHING INTO TEACHING UNDERGRADUATE GEOMORPHOLOGY

CORBETT, Lee B., BIERMAN, Paul R., and REUSSER, Lucas J., Department of Geology, University of Vermont, Delehanty Hall, 180 Colchester Ave, Burlington, VT 05405, Ashley.Corbett@uvm.edu

Geomorphology requires students to think both spatially and temporally, challenging them to understand sequential processes and complex series of interactions. Undergraduate students frequently find this a daunting task. We developed a new way of teaching Geomorphology that facilitated students' comfort with these difficult, and often new, ways of thinking. During the fall semester of 2008, we used "concept sketches" in our undergraduate Geomorphology course at the University of Vermont to address many of the challenges typically associated with teaching Geomorphology. Concept sketches are annotated diagrams or maps that encompass four specific levels of thinking: identification of a feature, description of a process, discussion of interrelationships between features, and predictions about future evolution.

We used concept sketches in a variety of applications throughout the semester, replacing more traditional lectures, lab reports, and tests. We used concept sketches as a first-day icebreaker and as an in-class activity, encouraging the students to work in groups. We also used concept sketches numerous times in association with field-based laboratory exercises, thereby allowing the students to transfer their spatially-based field knowledge onto annotated map sketches. For the mid-term and final assessments, we allowed students to work in pairs and create large, integrative, poster-sized concept sketches that synthesized material from the whole semester.

Both student and instructor feedback was positive. Concept sketches provided a way for the students to demonstrate their knowledge spatially, and aided them in synthesizing large amounts of information. The students enjoyed the alternative learning format, and agreed that creating concept sketches forced them to understand the material on a deeper level than a traditional exam. As instructors, we found concept sketches particularly useful for motivating students and for identifying misconceptions and knowledge gaps.

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General Information for this Meeting

Session No. 57
Issues in Geoscience Education
Omni William Penn Hotel: Monongahela
8:00 AM-12:00 PM, Tuesday, 22 March 2011

Geological Society of America *Abstracts with Programs*, Vol. 43, No. 1, p. 142