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Enhanced Reality: Linking the campus field trip and the virtual field trip in an inquiry-based Google Earth project for non-science majors

The challenges faced in introductory geoscience courses for non-science majors include overcoming students' scientific prejudices, maintaining an engaging learning environment, and reinforcing the concepts, information, and skills gained in the classroom and laboratory settings. These challenges may be approached in an inquiry-based course project that easily integrates – through the popular, widely available Google Earth software (earth.google.com) – the benefits of the standard campus field trip, a virtual field trip, and the use of technology.

Students worked with partners to investigate one or more geologic features (e.g. outcrops, dimension stone, sculptural pieces) to contribute to a compilation Google Earth resource for the geology of the Bentley campus in Waltham, MA. Students began the project with an introductory Google Earth tutorial on navigation, layers and featured content, and the creation and modification of placemarks. The remainder of the project was divided into short assignments that required students to implement their skills and knowledge. Student teams met with me to present the results of their initial investigation, including primary description of the feature, mineral identification, and rock classification, and to discuss completion of their research. Students worked independently, but used lab time to consult with classmates, seek assistance, and to use field equipment (e.g. handheld GPS receivers). Each team wrote a review of their observations and conclusions, and, if appropriate, placed their feature within the context of regional geologic history. The final project submission was a Google Earth placemark with a summary description of a geologic feature and selected digital photographs.

Students employed a variety of learning tools during this project, including cooperative learning, inquiry- and field-based investigation, and writing. Students also benefit from the use of technologies they will apply in their professional and personal lives. Once created, the Google Earth resource has many applications and possibilities for development: as a starting point for future class projects (revision, inclusion of additional geologic features); as a standard virtual field trip for evening courses; and as a community resource.