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# Integration of Problem-Based Learning and Web-Based Multimedia to Enhance Soil Management Course

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In an attempt to address declining enrolment in soil science programs and the changing learning needs of 21st century students, several universities in North America and around the world have re-organized their soil science curriculum and adopted innovative educational approaches and web-based teaching resources. At the University of British Columbia, Canada, an interdisciplinary team set out to integrate teaching approaches to address this trend. The objective of this project was to develop an interactive web-based teaching resource, which combined a face-to-face problem-based learning (PBL) case study with multimedia to illustrate the impacts of three land-uses on soil transformation and quality. The Land Use Impacts (LUI) tool (http://soilweb.landfood.ubc.ca/luitool/) was a collaborative and concentrated effort to maximize the advantages of two educational approaches: (1) the web's interactivity, flexibility, adaptability and accessibility, and (2) PBL's ability to foster an authentic learning environment, encourage group work and promote the application of core concepts. The design of the LUI case study was guided by Herrington's development principles for web-based authentic learning. The LUI tool presented students with rich multimedia (streaming videos, text, data, photographs, maps, and weblinks) and real world tasks (site assessment and soil analysis) to encourage students to utilize knowledge of soil science in collaborative problem-solving. Preliminary student feedback indicated that the LUI tool effectively conveyed case study objectives and was appealing to students. The resource is intended primarily for students enrolled in an upper level undergraduate/graduate university course titled Sustainable Soil Management but it is flexible enough to be adapted to other natural resource courses. Project planning and an interactive overview of the tool will be given during the presentation.