

WIP: A Pilot Study to Assess the Impact of a Special Topics Energy Module on Improving Energy Literacy of High School Youth

A special topics energy module, *The Hydrogen Economy*, has been created and taught as part of an NSF-funded educational outreach program established in 2000 at Clarkson University that brings college students into local schools to teach project-based curricula about environmental topics. The curricula are centered around the assignment of a problem – students learn, and then apply, standards-based science and math content and process skills that are relevant to their project or problem solution. Project based instruction is purported to improve student learning and to foster critical thinking, problem solving, and decision making skills.

The next few decades will see a dramatic change in the way we harness and use energy. An energy education program that uses a standards-based, project-based learning approach, and embeds energy issues within a societal context that is meaningful to students, may improve energy literacy and effectively prepare students to interpret energy issues and make sound actions and choices, as voters, consumers, and professionals

The present study will pilot an in-depth assessment plan to evaluate the ~~impact of one variation of the~~ *Hydrogen* module as it is taught in a high school environmental science class in the spring of 2006. Through this module, students will explore technical, environmental, societal, and economic concerns related to the production, delivery, and use of hydrogen fuel (and fuel cells) for transportation. The evaluation will assess the course's impact on students' general knowledge and awareness of energy-related issues, their attitudes and behaviors regarding energy production and consumption, and general feelings of self-efficacy. Analysis will use a triangulated mixed methods design. Written questionnaires will be administered pre/post program, with the pretest acting as the control group. Qualitative results from classroom observations, focus group discussions, and written responses to post-program free-response questions will provide a deeper understanding of the program's impact.