The Extended Classroom Framework: Impacts on International Student Learning

Bryan Runck^, Dr. Paul Porter*, & Dr. Mary Brakke*

Abstract

The problem of sustainability is fully wicked. From the defining of the problem to finding solutions, sustainability escapes disciplinary boundaries and simple solutions. Agroecology as a field has sought to train students in real-world contexts to prepare them to be practitioners working in wicked problems. Experiential and transdisciplinary educational methods have formed the backbone of agro-ecological pedagogy that brought students out of the classroom into the field. This process, while incredibly effective at the farm scale, is impossible when considering multiple interna-tional contexts. The Extended Classroom Framework expands on previous work done in agroecology pedagogy by incorporating online geographic information systems within online social networks that allow international collaborators to interact with students and each other throughout a course.

Methods

- •• Theory development (Fig. 2)
- •• Determine course objectives
- •• Use theory to design course (CFANS 3480)
- •• Develop international collaborations (Fig. 3)
- •• Build online social network (Fig. 4)
- •• Build online geographic info. syst. (Fig. 5)
- •• Develop in-person learning enviro. (Fig. 1)
- •• Perform pre/post assessments
  - • Intercultural development (Fig. 6)
  - • Environmental dispositions
- •• Do reflective journals throughout course
- •• Instructor reflection throughout` course

Hybrid Learning Environment

Figure 1. A picture of the hybrid learning envioronment used to deliver course content. Students met in person one time per week for two hours, and then did the remaining course discussions and agroecosystem exploration on the online social network and online geographic information system. Each week we would skype with a collaborator.

Citations
• Doering, A. (2006). Adventure Learning: Transformative hybrid online education. Distance Education, 27(2), 197–215. doi:10.1080/01587910600789571
• Francis, C., Jordan, N., Porter, P., Breland, T., Lieblein, G., Salomonsson, L., … Langer, V. (2011). Innovative Education in Agroecology: Experiential Learning for a Sustainable Agriculture. Critical Reviews in Plant Sciences, 30(1-2), 226–237. doi:10.1080/07352689.2011.554497
• Latour, B. (1999). Pandora's hope: essays on the reality of science studies. Harvard University Press.
• Warner, K. D. (2008). Agroecology as Participatory Science: Emerging Alternatives to Technology. Science, Technology, & Human Values. doi:10.1177/0162243907309851
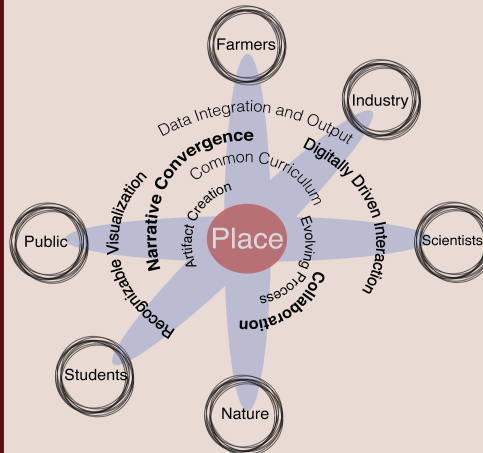
Extended Classroom Framework

Figure 2. The *Extended Classroom Framework* is a merger of Latour's *Actor Network Theory* (1999) and Doering's *Adventure Learning* framework (2006) informed by *Systems Action Education* (Francis *et al.* 2012). The framework presents a cohesive way to understand the online, experiential learning classroom as it navigates within a network of actors (human and non-human).
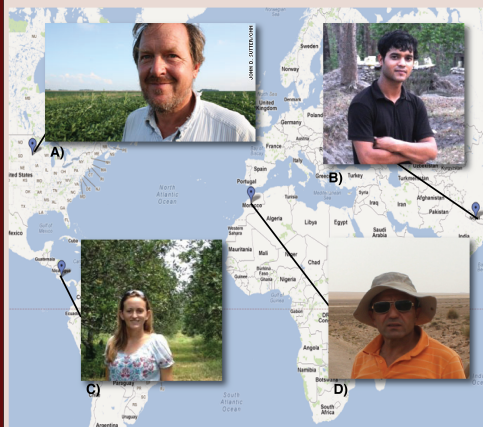
Global Collaborators

Figure 3. Our global collaborators were chosen on the basis of previous connection to the University of Minnesota and how 'unique' their agroecological regions were in compairson to each other. A) Tony Thompson, Minnesota; B) Sanjaya Dhital, Nepal; C) Amy Porter, Costa Rica; D) Rachid Boubid, Morocco.

^Primary Author Contact Info

Bryan Runck
runck014@umn.edu
http://www.bryanrunck.com
@runckb

Online Web Environments

Online Social Network: Ning

- •• Network selection rationale
  - • Easier multimedia integration than Moodle
  - • Strong social presence building capacities
  - • Easier for non-University people to access

Figure 4. Ning is a proprietary online social network development environment.

Online Geographic Information Systems

- •• Built custom, and used existing platforms
  - • Google Maps API, Landsat Look, ArcGIS Online
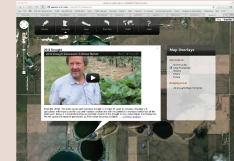 - • Data generated from free resources

Figure 5. Lab assignments using online GIS were a major aspect of students exploring each agroecosystem. The above mapping application was built using the Google Javascript API and included qualitative media artifacts (video, images, audio) as well as quantitative data layers (drought monitor, crop yields).

Results

- •• Students reported impactful learning
- •• Students reported online environments could be challenging to use
- •• Instructors reflections revealed four sites too many
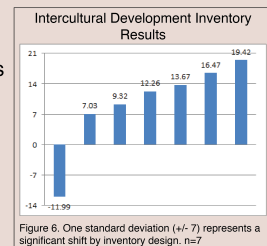- •• Students made significant shifts in intercultural development; one negatively (Fig. 6)

Intercultural Development Inventory Results

Figure 6. One standard deviation (+/- 7) represents a significant shift by inventory design. n=7

^*Department of Agronomy and Plant Genetics

UNIVERSITY OF MINNESOTA
Driven to Discover℠