

## Chapter 29

# Synchronous E-Learning on Rural Sustainability: A Reflection on a Course with Six Universities across Canada, Mexico, and the United States

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### ABSTRACT

*During this time of heightened awareness of issues related to sustainable development, there has been an explosion and advancement in communication and computer technologies. Merging the study of sustainable development in rural North America with technological innovation is the subject of this chapter. The authors discuss the evolution in education from traditional teaching environments and approaches, to interactive student and instructor learnings via computers and the Internet. The chapter reviews the authors' experience in a synchronous e-learning course on rural sustainability over a large geographic area, including the technology and technological challenges, working with diverse cultures, languages and academic disciplines, benefits and lessons learned.*

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## **ORGANIZATION BACKGROUND**

### **Coupling Sustainable Development and Synchronous e-Learning**

The magnitude of global challenges, such as climate change and its effect on ecosystem services (*c.f.* MEA, 2003) or the continuing disparity between developed and developing regions, is compelling academics from all disciplines to re-examine the concept of sustainability. The seminal phrase “sustainable development,”<sup>1</sup> and subsequent movement to implement the concept, captured at the World Commission on Environment and Development in 1987, induced nations to unite and pursue human activities in new ways. The concept of sustainable development is evolving to manage the world’s “wicked problems” (Zolli, 2012). Innovative approaches are required to further learn about, address the problems and challenges, and find solutions to achieve sustainable development.

In response, educational institutions across the globe are incorporating topics in sustainable development into teaching, research, and outreach missions. At the same time, advances have occurred in telecommunication capabilities beyond the innovators’ imaginations (Hillis, 2013). These innovations, along with computer technology, offer the “expandable classroom”. From kindergarten to post-secondary levels, communication and computer advancements are bringing educators and students together from across large geographic distances, multiple countries, and different cultural backgrounds.

This chapter examines one application of synchronous e-learning,<sup>2</sup> which we define as an interactive environment where learners and instructors from various locations “meet” at the same time via Internet video conferencing or video chatting. Our experience comes from a senior level post-secondary course on “Sustainable Development for Rural Communities: Social, Health, Economic, and Environmental

Advances (SustR)” delivered across three countries—Canada, Mexico and the USA—during consecutive fall semesters in 2010, 2011 and 2012. The intent of the course was to foster the cross-pollination of ideas from faculty and students of various backgrounds, and to develop innovative and multinational approaches for studying sustainability in rural settings.

Key course themes encompassed the rapidly changing demographic and economic situations and the historical effects of natural resource extraction in rural communities. Weekly modules for the course included introductory materials on the concepts of sustainability and governance, followed by a series of case studies in renewable energy, mining, agriculture, tourism, water and sanitation, and food security.

We present some considerations on evaluating whether to deliver a course by this mode. The implementation, acceptance of, and access to these new technologies present challenges to educators. For example, along with on-site technological and infrastructure criteria and requirements, issues can arise in communication networks, including when an institution from a developed region partners with an institution from a developing region.<sup>3</sup> We discuss e-learning across diverse cultural communities and languages. The course was delivered in English as the leading institutions hosting the course are English based and though for some students, English was not their first language but provided an opportunity to increase English language skills. We also discuss the benefits of employing synchronous e-learning that transcends borders and cultural diversities. The sources of information for this discussion include observations from the project directors and course developers and presenters, as well as from student evaluation instruments.

### **The Institutional Organizations**

Six universities— Lakehead University and the University of Northern British Columbia in

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