

Chapter 2

Integrating K–12 Hybrid Online Learning Activities in Teacher Education Programs: Reflections from the School of Rock Expedition

Matthew Niemitz
Adobe Systems Inc., USA

Scott Slough
Texas A&M University, USA

Kristen St. John
James Madison University, USA

R. Mark Leckie
University of Massachusetts - Amherst, USA

Leslie Peart
Consortium for Ocean Leadership, USA

Ann Klaus
Texas A&M University, USA

ABSTRACT

The School of Rock (SOR) expedition was a unique at-sea teacher education workshop that sought to introduce inservice teachers to scientific ocean drilling and collaborate in developing ways to extend this science content to K-12 classrooms. During the workshop teachers used an expedition website to communicate their learning and the “results” of the expedition to an onshore audience of students. While adventure learning/hybrid online learning is common in K-12 classrooms, the SOR expedition

DOI: 10.4018/978-1-61520-897-5.ch002

was unique in that teachers were the explorers and the workshop sought to use technology to enhance both the learning of students onshore and the learning of the participants of the workshop (Niemitz et al., 2008). Here, the authors examine how the SOR expedition website enhanced the teacher education goals of the workshop and compare and contrast their reflections with the literature on integrating technology into teacher education programs. The SOR experience identifies two new elements to consider as teacher educators design ways to integrate technology into education programs: 1) situations where pre- or in-service teachers can use technology to communicate narratives of inquiry can lead to engaging and formative learning experiences for both teachers and students; and 2) using technology to communicate new content knowledge to students in real or near real-time can reinforce a mindset for applying this knowledge to student learning needs as the teacher learning is in progress. The authors identify two examples of how to scale this model for integrating technology into teacher education and provide recommendations on appropriate technologies for doing so.

In November of 2005, 13 educators, 6 staff members, and over 50 crew members embarked from Victoria, British Columbia aboard the scientific ocean drilling vessel *JOIDES Resolution* on the first School of Rock expedition (SOR). For 12 days at sea, the primary, secondary, and informal educators explored the world of scientific ocean drilling firsthand - conducting scientific experiments, interviewing members of the crew, participating in the life of the ship, and creating instructional resources that they could use in their own classrooms and museums. Meanwhile, thousands of miles away, in classrooms all across the United States, students logged onto an expedition website that connected them, in an authentic way, to the learning that these educators were experiencing. On its own, this unique professional development workshop held significant value in enhancing the content knowledge and teaching of the participants. But, coupled with an interactive virtual expedition, the learning was extended from a select few in the field to an unlimited number of learners at home in near real-time (Niemitz et al., 2008).

The concept of interactive virtual expeditions (part of a larger hybrid online learning model, adventure learning) is gaining traction in education for its exemplary approach to both experiential learning and inquiry-based learning (Doering,

2006; 2007). But, scholars have focused on the role this model has in enhancing student learning. Little consideration has been given to how this model can apply to pre-service and in-service teacher education. The SOR expedition affords a unique perspective on this question, as the educators were directly involved in the expedition, rather than guiding their students as they followed a third party online expedition. As the participants enthusiastically received instruction in the scientific topics they were deeply interested in (Leckie et al., 2006; St. John et al., in press), the interactive virtual expedition spurred them to immediately use the content they were learning to take action with their students' learning.

The goal of this chapter is to present the SOR expedition case study to help examine the use of distance communications technology in teacher education activities. How did the model of coupling teacher education with real-time teacher-to-student communication (usually separate activities) serve to influence both teacher education and student learning? What does this case study tell us about how this model could potentially be scaled to more widely available or more traditional pre- and in-service teacher education scenarios? This chapter will present a theoretical framework for adventure learning and technology integration into teacher education programs, describe and discuss

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