

Research-Based Distance Learning Services in the Northern Pacific

Steve Baxendale

Pacific Resources for Education and Learning, USA

INTRODUCTION

The remoteness of the northern Pacific region presents significant challenges to providing high-quality, interactive, distance education. These geographic, economic, cultural, linguistic, professional, and technological challenges require creativity and flexibility in the design of courses and in instructional methods. This article explores the experience of a group of educators in providing distance learning opportunities throughout this region during the past six years.

Pacific Resources for Education and Learning (PREL) received a Star Schools grant from the U.S. Department of Education in 1998 to provide distance learning programming for students, teachers, and adults in Hawaii, American Samoa, the Republic of the Marshall Islands (RMI), the Federated States of Micronesia (FSM) (Chuuk, Kosrae, Pohnpei & Yap), Guam, the Commonwealth of the Northern Mariana Islands (CNMI), and the Republic of Palau. PRELSTAR: A Pacific Islands Distance Learning Program was created to provide distance learning courses for K-12 students, teacher professional development, and basic adult education. In addition, the program was commissioned to improve the telecommunications infrastructure and build local capacity in the use of educational technology.

Teachers and students of the Pacific are spread across 4.9 million square miles of ocean, islands, and atolls, encompassing six time zones and the International Date Line. Because the population is scattered across such a large area, telecommunications costs are high, and broadband Internet access is not affordable beyond American Samoa, Guam, and Hawaii. The distance between the Pacific entities creates a need among educators and students for effective communication infrastructures.

The remoteness of these islands, along with the local economic conditions of many of the developing

nations in the region, creates an environment where the cost of supporting a technology infrastructure and ongoing connectivity is overwhelming. Sustained development of technology is nearly impossible without supplemental funding sources. U.S. states and territories are provided with supplemental funds under the e-rate program to provide a “discount” for telecommunications services to schools, libraries, and rural healthcare organizations. Unfortunately, the developing nations in the Pacific lack the financial resources to provide reduced-rate telecommunications services for their education and health sectors.

Many Pacific teachers lack adequate professional training, yet opportunities for higher education and advanced courses are very limited in the region. Teachers, administrators, and technologists need dependable access to high-quality, educational resources to provide basic learning experiences, as well as to support professional development for the improvement of their education systems.

English is a second language in all entities in the region except for Hawaii and Guam. Limited English language skills present a challenge to users’ contact with distance learning providers and with communication between teachers and their students. Resources and services must be easily adaptable to various levels of language proficiency among teachers and students at different grade levels.

In addition to language differences, current instructional practice in many of the schools reflects the traditional, teacher-centered approach to teaching and learning. The self-directed, interactive, constructivist approach—used by many distance learning providers—is a completely new concept for many teachers and students in the region. The effective implementation of this approach requires training and modeling in instructional methods, technology, and other teaching resources.

TELECOMMUNICATIONS INFRASTRUCTURE

During the past six years, the telecommunications infrastructure has been dramatically strengthened to support distance learning through a mix of both new and existing technologies such as cable television, radio, video, and the Internet. PREL is now serving over 247,000 students, 1,858 teachers, and 400 administrators in the major population centers of the region. However, the cost of bandwidth remains high and limits the use of video streaming and other technologies.

The high cost of bandwidth has resulted in the development of courses that can be delivered on multiple platforms. While creating courses with synchronous components has always been the goal, asynchronous versions have also been developed to meet the varying requirements of students across the time zones and with limited access to telecommunications. As Okamura and Higa note (2000), the use of various technologies is required for effective distance learning in the Pacific.

In partnership with Pan-Pacific Education Communication Experiments by Satellite (PEACESAT) and local telecommunications and cable companies, PREL installed a video teleconferencing (VTC) network to connect islands in the northern Pacific. This VTC network is made available for government, health, and education use. PREL and PEACESAT staffs train local satellite station operators to operate and maintain the satellite terminals. This VTC network uses old geostationary operational environmental satellites (GOES) to provide low-cost telecommunications services throughout this region of the Pacific.

Partnerships have been established with governments, private businesses, and international non-governmental organizations (NGOs) to improve the telecommunications infrastructure. These partnerships deliver more than six hours of educational programming per day to local cable companies in 10 Pacific island entities. During the past six years, over \$10 million in services from these partners have been provided to support distance education. Goods and services include hardware, software, facilities, cost sharing, event sponsorship, broadcast and air-time for programming, and Web hosting.

CREATING EFFECTIVE DISTANCE LEARNING COURSES

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A thorough needs assessment must be completed before creating any distance learning course. This assessment must include the needs of the students, the state of the educational system, the political and cultural environment, the telecommunications infrastructure available (and any planned improvements), funding availability, challenges to providing distance learning, desires of all stakeholders involved, and a review of previous distance learning attempts.

Once the needs assessment has been conducted, instructional designers can begin to work with local educators or healthcare workers on creating the courses. The goal of PRELSTAR's distance learning program is to provide distance learning courses that are equal to face-to-face courses. The use of distance learning in the Pacific region offers the ability to improve teacher training and expand course opportunities for students. In the health area, distance learning offers healthcare professionals the opportunity to stay current with the latest developments in prevention and treatment while remaining in their local communities.

However, the lack of face-to-face, or synchronous, components in a distance learning course creates major challenges in providing no significant difference in outcomes, especially in courses involving teacher training. In the past three years, teachers in the region have recommended increasing the amount of face-to-face or synchronous interaction through VTC in all of the courses. Teachers report that both the face-to-face and VTC components are essential in the application of their learning in their classrooms.

Research by Peterson and Bond (2004) seems to support this experience. In their experience with two pairs of asynchronous online and face-to-face courses in instructional planning for preservice teachers, they found no significant difference in the group means for the online course and the face-to-face course "in the demonstration of inquiry, critical analysis, and synthesis for secondary teacher preparation" (p. 354). However, the students in both the online and face-to-face courses reported that the face-to-face courses better prepared them for teach-

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