Distance Learning in Micronesia:
Participants' Experiences in a Virtual Classroom Using Synchronous Technologies

by Kavita Rao

Institutions of higher education that serve Pacific island communities often look for innovative ways to reach constituents who live on islands spread across more than 3 million square miles of ocean. Courses taught in distance learning formats provide islanders with opportunities to further their education without requiring them to leave the islands or take time off from their jobs to obtain bachelor's and other advanced degrees. However, there are several challenges to developing and delivering distance learning courses in this region. The islands are geographically dispersed and culturally and linguistically diverse. Islanders live in traditional societies that blend indigenous cultural norms with the forces of modernization and development. Many island communities are rural, remote, and sparsely populated.

This article describes participants' experiences in a distance learning course that used synchronous technology to create a virtual class environment to train teachers in the northern Pacific region known as Micronesia. While institutions of higher education and educational leaders in Micronesia have expressed enthusiasm for distance learning courses as a vehicle to train future educators in the islands, there is little literature describing the viewpoint of the target audience of these distance learning initiatives. To develop culturally responsive educational systems, it is important for distance learning providers to determine why and how people make use of distance learning opportunities and to understand what factors lead to successful experiences for participants.

This study examined a reading course for K-8 teachers offered via distance learning technologies as part of a teacher professional development program to teachers on two islands in Micronesia, Pohnpei and Ebeye. The courses were developed and implemented as a partnership between Pacific Resources for Education and Learning (PREL), a Hawaii-based organization that implements educational initiatives in Micronesia, and Park University. The questions addressed in this study were

1. How can a virtual class environment, combining synchronous and asynchronous distance learning technologies, be structured to address the learning styles, preferences, and needs of course participants in Micronesia?
2. What factors that pose challenges and foster success for participants should course developers take into account when designing distance learning courses for Micronesia?

The findings derived from these questions about developing and delivering courses in these island settings may hold insights applicable to remote, rural, and indigenous settings in other parts of the world.

Creating a Virtual Classroom with Synchronous Distance Learning Technology

A typical distance learning course employs one or more methods to connect instructors and course participants. PREL's past experience with distance learning has shown that hybrid models of distance learning, which incorporate both synchronous and asynchronous methods, are received well by course participants in Micronesia (Baxendale 2005). Evaluations of courses previously taught in Micronesia have revealed a preference for face-to-face learning opportunities in addition to sessions conducted through technology. As a result, PREL has developed courses that integrate intensive week-long face-to-face sessions during which the instructor and participants meet in person with follow-up sessions that use Web-based courseware and e-mail. This model is cost-restrictive and not easily replicable.

In past course evaluations, participants have described a number of challenges related to the use of online courseware such as Blackboard or WebCT (Keller 2004). Many people on the islands use dial-up connections or lower bandwidth local area networks, which makes it difficult for them to consistently access and load the multiple pages of a Web-based course environment. Contributing further to this constraint is the fact that participants have limited access to computers and the Internet, thus reducing the amount of time they have to access materials, complete readings, and interact through threaded discussions in the online courseware environment.

In early 2006, PREL piloted the use of a new synchronous Web-based conferencing system to address some of these challenges while still providing a real-time virtual class environment. The course described in this article used Elluminate *Live*!, a java-based system that is optimized for low-bandwidth connections, and it proved to work well on the dial-up connections common in Micronesia. The system allowed the instructor and participants to interact during weekly class sessions via audio, text, and whiteboard as well as incorporating asynchronous elements common to distance learning classes (Table 1).

To address issues relating to computer access, PREL arranged for participants to meet in central locations for the Elluminate sessions of the course. Participants not only had the chance to meet as a group, but they also received technical support from local staff who had training and prior experience with the technologies in use. Instructors used the synchronous class meetings as an opportunity to emulate the discussion that takes place in a classroom. As supported by the literature on high-context cultures with a preference for group-oriented learning (Bentley, Tinney, and Chia 2005), this mode allowed participants to discuss content with their peers and within their cultural contexts and report back to the instructor for immediate feedback. The virtual class environment of Elluminate *Live*! gave participants the opportunity to be a part of a learning community rather than work in isolation, one of the challenges that prior course participants have cited.

Background on Indigenous Cultures and Distance Learning

In addition to technological issues, cross-cultural pedagogical issues are important to consider when designing and implementing distance learning courses in unique cultural settings such as those of the Pacific islands (Exhibit 1). For example, Bentley, Tinney, and Chia (2005) discuss key issues for studying distance learning in cross-cultural settings, and they mention eight educational value differentials to take into account for cross-cultural distance learning courses that are relevant to studying distance learning in the Pacific. These value differentials include social aspects, such as language, learning styles, and educational culture, as well as technical aspects, such as infrastructure and computer access.

While only a few articles have been published specifically about using synchronous technologies with indigenous learners, the published studies provide further information on particular cross-cultural issues to consider. Ho and Burniske (2005) note that participants in distance learning courses in American Samoa placed high value on the synchronous elements of the course, such as opportunities for videoconferencing and synchronous chat sessions. According to these researchers, these synchronous forms of communication helped students make the transition from their predominantly oral cultural traditions to the text-based online culture. Zepke and Leach (2002) discuss the fact that the Maori learners in their study lacked individual access to computers. Because of this access issue, the learners could not easily participate in the desired pedagogical experience—in this case, face-to-face interactions via video technology transmitted over the Internet. Zepke and Leach (2002) emphasize the importance of considering how a lack of access can render an otherwise viable technology solution useless.

Researchers also note that instructional design should be based on an understanding of the cultural modes and preferences of indigenous peoples being served by distance learning courses (Berkshire and Smith 2000; McLoughlin and Oliver 2000; Zepke and Leach 2002). Predominant learning styles and communication preferences are important factors for consideration. However, Henderson (2007) cautions designers to avoid superficial and tokenistic inclusion of multicultural perspectives and to be aware of stereotypes about cultural preferences. She provides a multiple cultures theoretical model for e-learning that takes into account the

various social and cultural factors within a setting. These include the prevailing academic and training cultures, the majority and minority cultures (including indigenous cultures), and the social epistemologies of class and gender.

In particular, researchers often emphasize the importance of community and collaboration for indigenous learners. For example, Berkshire and Smith (2000) studied a degree program for Alaskan Native students in a rural setting. In the asynchronous portion of the course, students engaged in small group discussions that allowed them to engage local mentors and elders in their communities on the subject matter they were learning. The researchers noted that such a format was culturally appropriate for these students whose predominant learning styles were inductive and application based. Likewise, Zepke and Leach (2002) noted that Maori cultural preferences include working in groups, taking holistic approaches to learning, having face-to-face contact and discussion, and linking learning to real-life tasks. For cultural groups that have a preference for collaborative learning, these researchers suggested using the principle of communities of practice.

While the practical focus of the course in Micronesia meant that direct engagement with the theoretical discussion surrounding these issues was not appropriate, all of these issues of culturally relevant course design were considered in the development and implementation of the course. In course activities and assignments, the focus remained on how the strategies being taught could be relevant for local contexts. Assignments included weekly opportunities for participants to put the lessons into practice in their classrooms with their students, reflect on how the material worked in their cultural contexts, discuss the course content and its implementation with peers, and reflect as a group and individually on how the lessons could be used and adapted within local settings.

Case Studies of Pohnpei and Ebeye

The course studied in this article was a reading course for K-8 teachers called Literacy I: Basic Reading Strategies. It was taught at each site, Pohnpei and Ebeye, for eight weeks in the spring of 2006. In both settings, the course was offered as the first in a series of courses leading to an online bachelor's degree in education.

A technology survey was conducted prior to the start of the two courses so that issues of access and participant skill could be considered in course design. The survey and its results provide a snapshot of the technology scenario for participants on the two islands (Exhibit 2). Instructors used the information from these surveys to guide technological and logistical preparation for the course (Exhibit 3).

Pohnpei Setting and Participants

Pohnpei, which comprises one large island and six atolls, is one of the four states of the Federated States of Micronesia (FSM). The population of Pohnpei is approximately 37,000 (1999 estimate). Pohnpeian, a Micronesian language, is the dominant language of the islanders, and two Polynesian languages are also spoken by groups of outer islanders who live in Pohnpei. English is widely spoken.

Twenty-two participants enrolled in the course. Twenty of the participants were grade one to grade eight schoolteachers, one participant was a high school teacher, and one participant was a specialist for the Pohnpei Department of Education. All 22 participants had associate degrees from local colleges.

Ebeye Setting and Participants

Ebeye is an island in the Republic of the Marshall Islands (RMI), next to the U.S military base in Kwajalein. The island is densely populated, with more than 12,000 people living on its 80 acres. Marshallese is the main language spoken on Ebeye. English is spoken as a second language.

Fifteen participants signed up for the Literacy I course on Ebeye. Ten had associate's degrees, and five had high school diplomas. The participating teachers taught grade levels ranging from one to eight, and the group included one special education teacher.

Data Collection

A number of methods were used to gather data on participants' perspectives on their experiences in the distance learning course; surveys, document analysis, observations, and interviews were conducted at each site (Table 2). In addition to the preliminary technology survey described earlier, participants were asked to complete an evaluation survey at the end of the course (Exhibit 4). In turn, selected participants were interviewed to glean more specific insights about participants' feelings about the course (Exhibit 5). The instructors also included in the required homework for the course weekly journal prompts asking about specific technology issues (Exhibit 6); participant responses to these prompts were analyzed for this study.

The researcher used a purposeful sampling method to select participants for the interviews. The course instructor in Pohnpei selected six students who were good candidates to interview. The selection reflected a mix of those who were faring well in the course and some who experienced challenges completing assignments according to the course expectations and grading rubrics. The site facilitator asked the selected participants if they would be willing to be interviewed by phone. Participants who agreed to be interviewed participated in a thirty-minute phone conversation with the evaluator. In Ebeye, the course instructor selected five potential participants to interview. Because of time differences and other technical issues, only two participants of the five selected could be contacted in Ebeye.

The researcher used qualitative content analysis methods (Merriam 1998) to analyze the data collected. After coding the weekly reflection journal responses, the interview data, and the observation data, the researcher looked for key themes in these narratives. Themes that emerged in the analysis included (a) learning styles and preferences, (b) content acquisition issues, (c) technology infrastructure issues, (d) technology skill issues, and (e) just-in-time assistance. Internal validity of findings was established through triangulation and member checks (Merriam 1998). The course instructors, site facilitators, and colleagues who have been involved in prior distance learning courses reviewed the findings to provide additional verification of the emerging themes.

Findings

Challenges for Participants

The asynchronous component of the course posed the greatest challenges for participants. Participants needed to access computers and use word processing and e-mail to submit weekly homework assignments. Having anticipated the challenges of varying technology skill levels, PREL had identified locally based site facilitators who could help participants on an as-needed basis. This just-in-time assistance proved invaluable for participants. More than two-thirds of the participants in both Pohnpei and Ebeye reported needing extra assistance in setting up and using e-mail accounts and in sending attachments via e-mail. Participants who had received their associate's degrees in the past five years were more comfortable with these computing skills because they had used computers during their classes at local colleges.

In both Pohnpei and Ebeye, participants had trouble accessing computers during the week to type their homework. In the Pohnpei group, all but one participant reported using computers at their schools, often a shared computer in the school office. A few participants had obtained permission from their principals to use the computer over the weekend. The lack of ready access to computers created challenges for participants with busy teaching schedules. Several participants said they had to use the computers after school when they also had to do lesson planning and other schoolwork. Without computers at home, it was not possible to complete coursework in the evenings and on weekends. On Ebeye, although there was a computer lab available to participants, problems with software rendered most of the computers unusable. Participants

shared two or three laptops that belonged to the site facilitator and the vice principal of the school. They also relied on one dial-up Internet connection at the school to submit their homework.

Despite these challenges, participants sent in assignments steadily. Instructors remained aware of these challenges and remained flexible. On a case-by-case basis, they worked with participants to accept late assignments and provide time for make-up assignments.

Successful Experiences with Distance Learning

End-of-course evaluations and phone interviews revealed that participants liked the weekly virtual class sessions with the instructor over Elluminate *Live*!. Despite some of the technical difficulties, such as audio problems and connection delays, comments about Elluminate *Live*! were positive. The one challenge with the sessions was that some participants felt that they did not get enough time to talk to the instructor personally. Four of the seven participants interviewed said that they would have liked additional time to talk with the instructors, possibly via phone. Some participants who were daily e-mail users said that they wrote to their instructor regularly and felt this method was an adequate way to get the one-on-one communication they wanted.

The instructors of the Literacy I course provided opportunities at each virtual class session for participants to work in groups to discuss and reflect on course content. Several participants said they enjoyed this format and learned from working with peers. When asked if they preferred individual work to group work, those who were interviewed said they liked both formats. Many liked working individually to do their homework since they could reflect and write on their own. Students liked working in a group but preferred not getting graded on group work. Several participants said that they learned from each other's experiences in the group assignments and also used this opportunity to clarify and further understand concepts being taught in class. Consistent with the literature on the importance of including opportunities for collaboration and interactions with community in indigenous settings (Berkshire and Smith 2000; McLoughlin and Oliver 2000; Zepke and Leach 2002), participants stated that the group work was a valuable way to make relevant cultural and local connections between the curriculum being taught and their school settings.

When asked what made them feel successful in the Literacy I course, participants consistently reported that they benefited greatly from learning strategies that they could put to use in their classrooms immediately. The participants who were interviewed by phone reported being able to use these new teaching strategies weekly, and they enjoyed seeing evidence of the strategies working with their students. One participant reflected that this course was the first chance she had had to take a formal education class since her associate's degree was a liberal studies degree. It seemed that learning applicable strategies was useful for many of the participants who had not previously received systematic training in instruction in the areas they taught.

Participants in both the Pohnpei and Ebeye courses expressed interest in continuing with future courses and appreciation for the opportunity to get further training via distance learning. Of the 19 people who started the course in Pohnpei, 17 successfully completed the course and received a passing grade. Of the 15 people who took the course on Ebeye, 13 completed the course. In several cases, participants needed extra time after the end of the course to finish the coursework. The participants had legitimate reasons for this need, especially because of the limited numbers of computers they shared and limited Internet access. Instructors communicated with participants on a case-by-case basis to provide this accommodation as necessary.

Recommendations for Distance Learning Course Designers

As a result of the surveys and interviews, we identified a number of key factors that course designers should take into account when developing distance learning courses in Micronesia (Exhibit 7). Some of these factors may be generalized to apply to similar initiatives in which distance learning is provided to adults in remote or indigenous settings. Most importantly, designers of distance learning courses should ask facilitators and participants about their settings and situations to find out what structural and human factors to take into

account. While instructors can ultimately decide what accommodations they are willing to make, a recognition that one size does not fit all for distance learning initiatives is vital in supporting those who choose to participate in these courses. With some flexibility and willingness to appraise the needs of participants and to design courses accordingly, providers of distance learning can create a viable mechanism to provide educational opportunities in settings such as the ones in these case studies.

Conclusion

Participants in these case studies of distance learning in Micronesia were overwhelmingly positive and appreciative of this opportunity to further their learning. Despite the challenges and frustrations they faced due to limited computer and Internet access, participants remained enthusiastic about continuing to take courses in this hybrid format that included synchronous and asynchronous technologies. The virtual classroom environment provided by Web-based conferencing software was deemed an acceptable and effective replacement for the face-to-face mode of communication that participants valued. These case studies illustrate the promise of courses that use emerging synchronous online technologies to address participants' preferences for real-time interaction with instructors.

References

Baxendale, S. 2005. Research-based distance learning services in the northern Pacific. In *Encyclopedia of distance learning*, Volume 4, ed. C. Howard, P. L. Rogers, J. Boettcher, G. A. Berg, L. Justice, and K. Schenk, 1558-1563. Hershey, PA: Idea Group Reference.

Bentley, P. H., M. V. Tinney, and B. H. Chia. 2005. Intercultural internet-based learning: Know your audience and what it values. *Educational Technology Research & Development* 53 (2): 117-127.

Berkshire, S., and G. Smith. 2000. Bridging the great divide: Connecting Alaska native learners and leaders via "high touch-high tech" distance learning. In *Monograph series of the National Association of African American Studies*, ed. L. Berry, 24-39. Houston: National Association of African American Studies.
Henderson, L. 2007. Theorizing a multiple cultures instructional design model for e-learning and e-teaching. In *Globalized e-learning cultural challenges*, ed. A. Edmundson, 130-153. Hershey, PA: Information Science Publishing.

Ho, C. P., and R. W. Burniske. 2005. The evolution of a hybrid classroom: Introducing online learning to educators in American Samoa. *TechTrends* 49 (1): 24-29.

Keller, R. 2004. *Comprehensive literacy in the Pacific (CLF) pilot test report*. Honolulu: Pacific Resources for Education and Learning.

McLoughlin, C., and R. Oliver. 2000. Designing learning environments for cultural inclusivity: A case study of indigenous online learning at a tertiary level. *Australian Journal of Educational Technology* 16 (1): 58–72. http://www.ascilite.org.au/ajet/ajet16/mcloughlin.html (accessed September 30, 2007).

Merriam, S. 1998. *Qualitative research and case study applications in education*. San Francisco: Jossey Bass.

Zepke, N., and L. Leach. 2002. Appropriate pedagogy and technology in a cross-cultural distance education context. *Teaching in Higher Education* 7 (3): 309–321.