Hawai'i DOE On-Line

ADVANCED TECHNOLOGY RESEARCH BRANCH STAFF/DEPARTMENT OF EDUCATION

"The new economy is increasingly driven by creativity, innovation, and technology, with high-skill jobs growing at nearly three times the rate of other jobs. In the field of information technology, the hunt for employees with high-tech skills is becoming more and more intense. There are hundreds of thousands of vacancies out there in America right now" (President Clinton, March 6, 1998).

Two years before President Clinton made this statement, the Advanced Technology Research Branch (ATRB) of the Office of Curriculum, Instruction and Student Support (OCISS) of the Hawai'i Department of Education (DOE) was awarded a $ 4.7 million competitive federal grant to transform teaching and learning to meet the demands of the "new economy." The E-School Technology Innovation Challenge Grant of 1996 was the genesis of the Department's efforts to initiate a multi-prong approach to bring standards-based curriculum to the children of Hawai'i and use technology to upgrade professional development for its teachers.

To support the integration of technology into the learning environment for teachers and students, ATRB actively seeks competitive grant opportunities. The grants include the US DOE Technology Innovation Challenge Grant E-School, US DOE Technology Earmark Challenge Grant Magnet E-Academy, National Science Foundation Rural Systemic Initiative Hawaii Networked Learning Communities, Bill and Melinda Gates Foundation Hawai'i iLead and World Com MarcoPolo State Administrator and Web Site Integration grants.

In this article, the authors will describe how various projects have developed out of the E-School initiative and now form the core of the DOE's efforts in information technology and distance education. The efforts include appropriate use of synchronous and asynchronous technologies and face-to-face instruction to provide learning opportunities for teachers and students. A variety of projects support the Department's efforts to develop high-skilled employees through courses and other enhancements that prepare students as well as provide staff development opportunities for teachers. The student-oriented programs are E-School, Magnet E-Academy and Oracle Internet Academy. The professional development projects are the Technology and Telecommunications for Teachers (T3), Advanced Technology Applications, Designing an Online Course, Technology Literacy mini courses, Hawai'i Networked Learning Communities, Hawai'i iLead and MarcoPolo.

Student Oriented Services

Effective educational programs provide opportunities to learn for both students and teachers. This section addresses programs that target specific student offerings. The focus of the professional development in these programs is to provide direct opportunities for students to participate in technology-enriched courses. The ATRB programs are E-School, Magnet E-Academy and Oracle Internet Academy.

E-School

In 1996, the DOE was awarded a 5-year $4.7 million grant from the United States Department of Education. The Technology Innovation Challenge Grant provided money to develop a virtual school statewide that would offer standards-based online courses for high school credit. E-School, which supplements courses offered at the high schools, was developed to bridge the "digital divide" by increasing learning opportunities for students from neighbor island rural schools. Small neighbor island schools often represent an under-served population of Hawai'i's school-aged students. New figures indicate that distance education is serving this population with 47% of the schools and 43% of the students participating in E-School coming from the neighbor islands. This represents a high percentage of neighbor island participation because only 32.8% of the schools and 32.4% of students are from the neighbor islands. Over the course of the grant period, more than seventy courses have been developed and many are offered to public high school students through E-School.
E-School will continue to offer online high school credit courses to students throughout the state of Hawaii. Fall 2002 course offerings will be updated and revised over the summer.
www.eschool.k12.hi.us

Magnet E-Academy

In 1999, the Advanced Technology Research Branch was awarded a $ 2 million Technology Innovation Challenge Earmark Grant and in the same year the Hawai'i Legislature passed the Technology Omnibus Bill that established the Magnet E-Academy statewide. This project is building successful models of technology-based curriculum and professional development to promote systemic reform. Building on the National Educational Technology Standards and the Hawai'i Content and Performance Standards II, the project makes use of established best practices in combination with technology to form the basis of future career development of students. The Magnet E-Academy provides relevant, challenging and meaningful course offerings in science, math, technology and engineering to meet students' interests as well as prepare students for entry-level occupations in those fields or for continued studies in college, university, community college, or technical educational institutes.

Currently, 21 middle and high schools statewide offer virtual and onsite A+ Computer Technician Training, Net Prep (networking) and Generation www.Y multimedia courses. In addition, a number of high schools, as members of the Oracle Internet

Academy, began offering courses in the fundamentals of database programs.

Recently, three high school complexes, Pearl City High School, Castle High School and Kealaheke High School, were awarded $20,000 each from Magnet E-Academy to sustain and expand on the E-Academy initiatives at their school complexes, which include elementary and middle schools. These high schools submitted proposals that meet the unique needs of their school communities. They will plan together to capitalize on the expertise of the teachers trained by Magnet E-Academy; and students who can demonstrate and apply their knowledge and skills in computer technology will provide much needed technical assistance to their complexes. This complex-wide team effort of administrators, teachers, and district leadership holds promise for far-reaching sustained results where stakeholders participate in decision-making to meet their needs and goals. In their words:

> *This year we are in the planning phase of implementing a number of Smaller Learning Communities. We have already identified three Academies including the Technology Academy, which will integrate technology into the curriculum of math, Science and Social Studies and group together students interested in*

Technology. E-Academy courses will play a vital role in the development and continued existence of our new Technology Academy.

From Day One, we were thinking of sustainability. We knew from the beginning, we had two years to experiment with and identify strategies that would allow us to expand the concept after the grant ended.

Schools in Magnet E-Academy offer curricula based on high strands in technology, math and science. They do so with the goal of developing innovative technology training, and model programs that can be replicated at other sites. Working in tandem with E-School, the Magnet E-Academy has planted the seed within these schools to continue meeting the challenges of systemic reform by delivering courses based on high standards of teaching and learning (See <http://e-academy.k12.hi.us>)

Oracle Internet Academy

The Oracle Internet Academy is a partnership between Oracle Corporation and the Hawai'i Department of Education that was established in the spring of 2001 to introduce students to the Internet and to web application development. The Oracle Internet Academy provides member schools with professional development, software, course materials, and support.

High schools that have made a commitment to join the Academy offer a two-semester course in database design and development with an introduction to SQL and PL/SQL functions. Java programming and database applications is also offered in the second year. Teachers are trained over the Internet as well as at Oracle corporate headquarters during the summer. The Academy teaches students to master skills that are in high demand in today's competitive work environment.

Last summer, nineteen teachers representing twenty schools attended a two week institute at Oracle Headquarters in San Francisco and in the fall of 2001 began offering Course I (Database Fundamentals) and Course II (SQL & PL/SQL) to students at their schools. This summer, twenty-three instructors from twenty schools will be attending the Summer Institute conducted by Oracle on the University of California at Los Angeles (UCLA) campus. They have already begun their pre-institute online training before traveling to UCLA for face-to-face training at the Summer Institute. These teachers will return to their schools next fall ready to offer a two-year program in Java and database programming using the latest industry tools. http://oraclespromise.com/pages/oia.html

Professional Development Services

ATRB also offers a number of professional development services to educators statewide to support teachers who wish to integrate and infuse technology into the curriculum: The Technology and Telecommunications for Teachers (T3), Advanced Technology Applications, Designing an Online Course, Technology Literacy mini-courses, Hawai'i Networked Learning Communities, Hawai'i iLead and MarcoPolo.

T-3

The DOE's Technology and Telecommunications for Teachers (T3) Program is a one-year-long program designed to prepare teachers and school leaders to infuse appropriate technology into instruction.

Participating teachers work toward the following goals:

- Develop a sound understanding of technology operations and concepts.
- Plan and design effective learning environments and experiences supported by technology.
- Implement curriculum plans that include methods and strategies for applying technology to maximize student learning.
- Apply technology to facilitate a variety of effective assessment and evaluation strategies.
- Use technology to enhance productivity and professional practice.
- Understand the social, ethical, legal, and human issues surrounding the use of technology in PK-12 schools and apply that understanding in their practice.

This course is a combination of hands-on training, video conferencing, online learning (via the T3 class website), and small group face-to-face and electronic collaboration (site based and inter-island). Continuous interaction is promoted between the program coordinator, site coaches, and the participants as well as frequent assessments employing reflective journals, online projects and web-based portfolios. In addition to exploring how technology can enhance instruction and student learning, participants also develop a

network of resources to support a virtual learning environment.

T3 also offers opportunities for professional development training, such as:

Advanced Technology Application (ATA) where teachers choose to work independently on topics ranging from designing Internet content for the classroom to multimedia design and presentations.

Designing Online Courses (DOC) that is designed to prepare teachers to teach in an online environment.

T3 will be offered again next year. More information about the availability of the DOC and TLCF mini-courses is available at the website: www.k12.hi.us/~tethree/

Technology Literacy Challenge Fund (TLCF) Mini-Courses

In 1997 President Clinton challenged educators nationwide to ensure that "All children be technologically literate by the dawn of the 21st century." In support of this effort, the Hawai'i Department of Education has been sponsoring two courses that teachers can take for professional development credit. The courses are designed as short-term opportunities for teachers to learn an application and design a project that they can quickly implement in their classrooms. Applications include HyperStudio, KidPix, iMovie, Photoshop, use of digital cameras and scanners, web design, basic Internet, and Inspiration. This summer's program called "Riding the Techno Wave" includes courses such as: Internet in Your Classroom, Inspiration and Introduction to Graphic Organizers, Kid Pix and Multimedia Presentations and LifeNet: A Real Life Simulation—A Technology Enabled Interdisciplinary Unit.

On January 8, 2002 President Bush signing into law the *No Child Left Behind (NCLB) Act of 2001*, a reauthorization of the Elementary and Secondary Education Act of 1965. With this reauthorization of the ESEA the original TLCF will now be known as Enhanced Education Through Technology.
http://www.k12.hi.us/~tlcf

Hawai'i Networked Learning Communities

A consortium led by the Hawai'i DOE and the University of Hawai'i at Mānoa recently received a $ 6 million National Science Foundation grant to improve science, math, and technology education in the state's rural public schools. The Hawai'i Networked Learning Communities (HNLC) is part of National Science Foundation's Rural Systemic Initiatives program and is designed to create a social and technological base for networked learning communities to study and sustain Hawai'i's rich science, technology, and cultural resources. The goal is to prepare all students, regardless of socioeconomic background, for life and careers in today's complex, dynamic technological world by preparing them to reach high standards in science, math and technology education. Schools will develop rigorous science, math, and technology curricula that are aligned with the Hawai'i Content and Performance Standards and leverage Hawai'i's resources through a focus on global environmental studies and Hawaiian ways of knowing. Professional development will enable teachers to become better users of curriculum resources and adapt these resources to meet local needs and utilize them with effective instructional practices.

Principal investigators for the Hawai'i Networked Learning Communities project are Vicki Kajioka, Director of Advanced Technology Research for the DOE; Daniel Suthers, Assistant Professor, UHM Department of Information and Computer Science; and Violet Harada, Associate Professor, ICS, Library and Information Science Program.

HNLC will offer its first summer institute at Waikoloa Elementary School on June 25 to 26, 2002. Project schools from Kaua'i, Maui, Lana'i and Hawai'i will participate in the institute.
www.http://lilt.ics.hawaii.edu/hnlc

Hawai'i iLead

Hawai'i iLead is supported by a Gates Foundation Grant. The goal of Hawai'i iLead is to integrate technology and the Internet into standards-based instruction and support the required HDOE Standards Implementation Design (SID) process: a project that was started in 2000 to provide a framework to support implementation of a school-based strategic plan. The SID is an assessment, planning and implementation

tool designed to engage the learning community in a continuous process of school renewal and improvement. Hawai'i iLead will provide staff development to help school administrators use technology to improve and strengthen administrative and instructional applications.

The development of a leadership staff development program that optimizes the use of the digital information resources and the wide-area communications system that connects all schools and classrooms is vital to the improvement of Hawai'i's public schools. HDOE voice, video and data systems will be used as the foundation to develop a model face-to-face and interactive web-based leadership training program that maximizes the use of appropriate technologies to prepare their students for their future in the Digital Age. This program for school administrators will be modeled after the highly successful Telecommunications & Technology for Teachers (T3) program.

Expanding upon this program Hawai'i iLead will offer initial face-to-face training with on-going online support and resources. Training will include personal productivity tools such as Microsoft Office Suite. Use of Word and Excel is integral to becoming an effective administrator. Power Point is another tool administrators can use for presentations and meetings. Instruction in the use of administrative tools and email using Lotus Notes will help administrators become more effective users of technology. http://ilead.k12.hi.us

MarcoPolo: marcopolo.k12.hi.us

The Hawai'i DOE along with the WorldCom MarcoPolo Internet Professional Development Program has begun a statewide project to train teachers to integrate the Internet into their instruction and to enhance student learning. MarcoPolo is a leader in creating high quality, standards-based, commercial-free Internet content for K-12 classrooms. Based on the "train the trainer" model, MarcoPolo has trained more than 3,000 lead teachers since January. These lead teachers will work with the MarcoPolo staff development teams to create "virtual classrooms" and curriculum that can be delivered over the Internet.

With funding from two MarcoPolo grants, a state administrator has been contracted to coordinate the "roll out" of the program into all the state's public schools, and a team of six educators has been contracted to align 900 MarcoPolo lessons with Hawai'i Content and Performance Standards. Presently, 75% of Hawai'i's public schools have at least one designated MarcoPolo trainer. One-hundred-and-five end-user training sessions were conducted by school level trainers during the 2001-2002 academic year. The DOE's goal for 2002-2003 is to increase the number of end-user training programs in the public schools by providing increased support to the trainers in the integration of MarcoPolo resources into the curriculum.

MarcoPolo provides quality Internet curriculum content for K-12 teachers, offering over 1000 original lessons and reviewed resources through the partner web sites. The MarcoPolo web site is a gateway to a world of original content, panel-reviewed links to top web sites, a search engine that helps teachers find important information quickly, and extensive supplemental resources across multiple disciplines: the Arts, Economics, Geography, Humanities, Mathematics and Science. Teachers can browse the database by content area, lesson, and/or grade level.
http://marcopolo.worldcom.com

Conclusion

The HDOE aims to continue its work with various partners in higher education, government, business and the local community to develop technological solutions to educational problems and to prepare students and teachers to become literate users of computer technology. In order to achieve these goals, the ATRB will continue to seek funding through grants and develop partnership opportunities to expand the use of technology to support teaching and learning.

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